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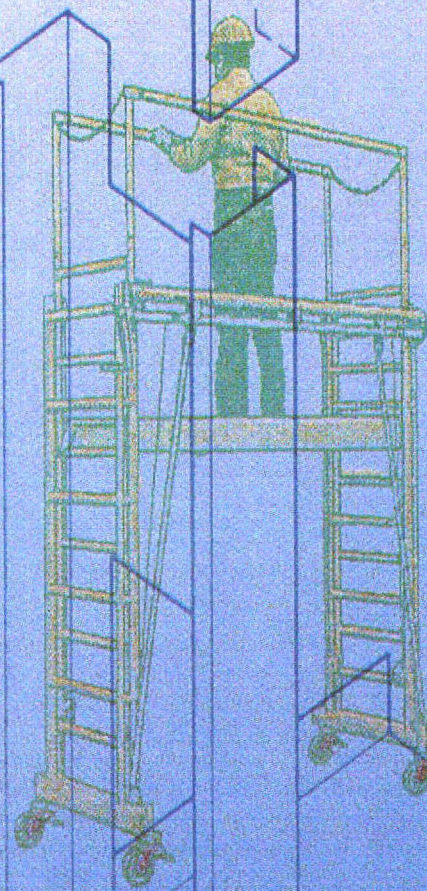
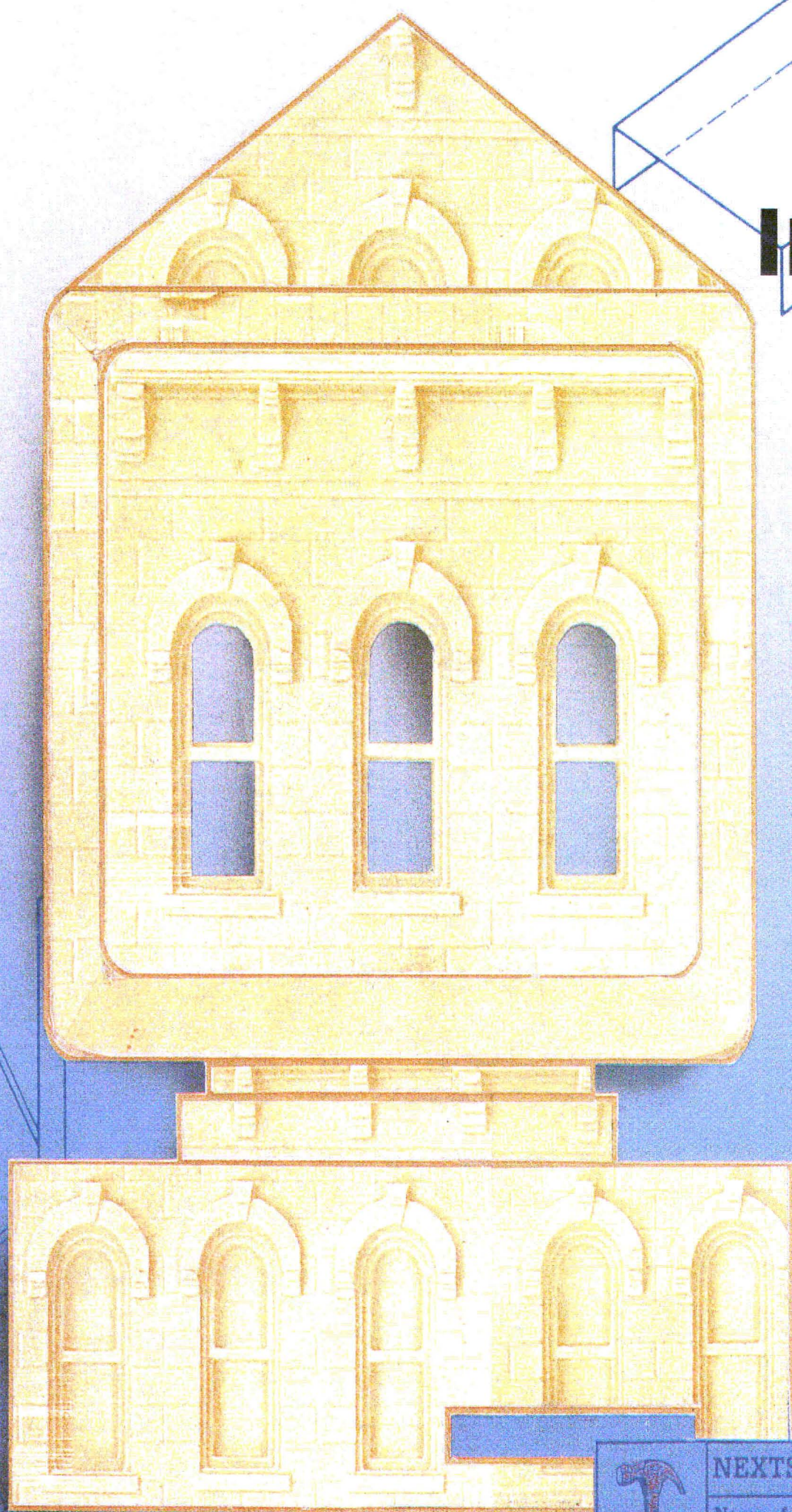


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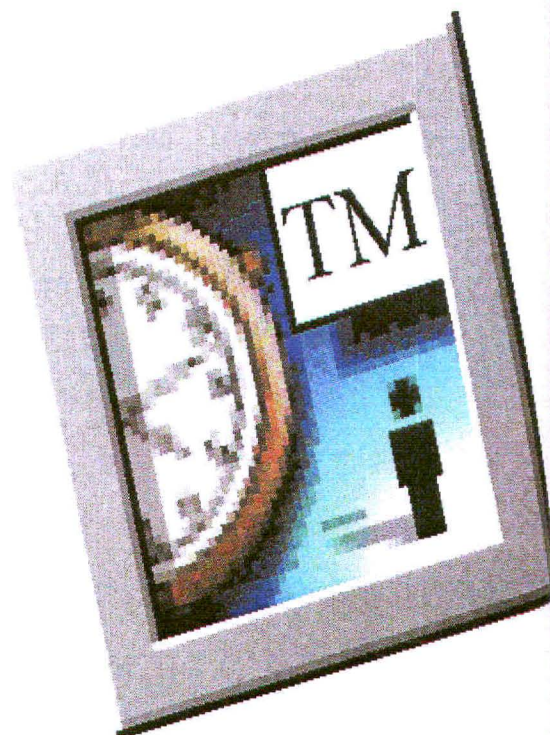
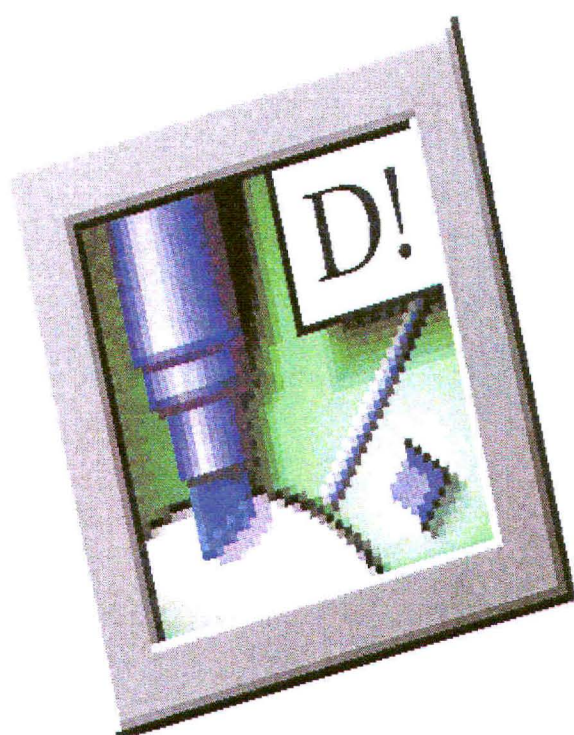
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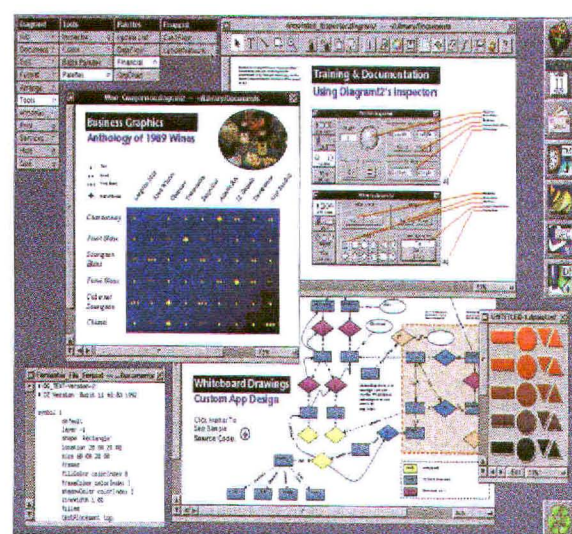
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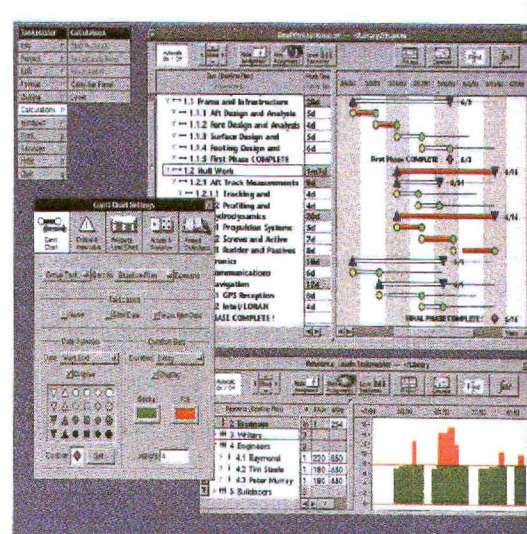
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The arrival of Insignia Solutions' SoftPC as an extra-cost add-on to NEXTSTEP 3.2 introduces new questions into the turmoil of the third-party software market. Will users turn to Insignia's software as their preferred environment for productivity apps, while looking to the native environment only for custom development? Or will SoftPC remain a safety net for users who need one or more unavailable NEXTSTEP apps, while they continue to work mostly in the native environment?

The good news is that SoftPC is fast, robust, and reasonably compatible. The bad news is that SoftPC is fast, robust, and reasonably compatible.

One thing is clear: It's not your father's SoftPC. No longer the emulation product of old, this is a product that lets you run PC applications on PC hardware. It's like a nest of three boxes. On the outside you have the PC hardware. Inside is NEXTSTEP, and inside that is SoftPC. You run it either in a NEXTSTEP window or in full-screen mode. Switching is fairly easy, though not necessarily automatic. The same cautions apply to cutting and pasting.

Not to denigrate Insignia, which has shipped an outstanding product, but SoftPC has more exceptions than rules. In the case of each of the three programs that confirmed NEXTSTEP users would be most likely to want to use under SoftPC – WordPerfect, FrameMaker, and Improv – the current shipping version of the product is not guaranteed to run.

Beyond compatibility issues, switching constantly between environments detracts from the consistency of the NEXTSTEP experience. You use Windows because you have to, not because you want to. Many folks out there in PC land use it because they don't know any better. But for those of us who have experienced NEXTSTEP, regressing into an environment like Windows

is a less than pleasant experience.

Then there is the issue of NEXTSTEP's added value. As I have written previously in this space, the opportunity for developers lies in taking advantage of the special characteristics of the NEXTSTEP environment to offer special integration capabilities that differentiate their apps from run-of-the-mill desktop productivity apps. If the competition is head-to-head on features, it is unlikely that many NEXTSTEP programs will be superior to Windows standard-bearers. But NEXTSTEP applications that add value in the form of APIs, objects, or Services provide a good reason for users to stay native.

The bottom line is that SoftPC is a more than adequate solution for running standard apps like Microsoft Word and Excel, or NEXTSTEP refugee apps like WordPerfect and Improv. Companies that require access to these products will do just that.

But given a choice of reasonably competitive applications, I have to believe that most users will prefer to stay native. SoftPC really amounts to a safety valve providing access to application categories that are not yet fully represented under NEXTSTEP and to particular programs that may be required

by an organization's approved list.

★ ★ ★

With this issue, our longtime senior editor for technology, Simson Garfinkel, shifts to a new role as senior contributing editor as he moves on to other projects in and out of the NeXT market. His Developer Camp column, which this month is sure to raise hackles in Redwood City, will continue. Thanks, Simson, for your singular contributions to the NeXT world. ♦

DAN RUBY is NeXTWORLD's editor in chief.

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Circle 69 on reader service card

Black was better

I'm getting slowly but surely annoyed by all the articles I read that try to tell people that white hardware is cheaper than black hardware. Do you really believe you only paid for the hardware when you bought a NeXT system? Try subtracting the software price from a NeXTstation, and then go and find me a white system that is cheaper and compares in overall performance.

The cheapest system you mention in your survey, the NCR machine, is slower in every single one of your benchmark categories. Nevertheless, with \$4700 for the system plus \$795 and \$1995 for the user and developer system, you are up to a total of \$7490, which is pretty close to the price of a NeXTstation Turbo Color.

Now consider that the NeXT system was up and running in 15 minutes, while you have a hardware-support person fiddling with DIP switches for about a day until NEXTSTEP for Intel finally works.

Obviously, there are advantages to white hardware, such as a lower risk for companies trying NEXTSTEP. But from both a technical and price/maintenance standpoint, moving to white hardware is hardly a bargain.

RONALD C. F. ANTHONY

I have not read much in NeXTWORLD about the fact that the Intel-based computers you've tested all have nearly the same incredibly poor styling. They seem to be designed like the operating system they once accommodated - DOS. NeXT users once were used to riding on elegant horses. Now there's big horsepower, but the horse makes a "moo" sound.

On another subject, if NeXT-Connection thinks it's better to sleep during the revolution, they'll never wake up. As a user, it's easy to survive with the *Electronic App Wrapper*. Other resellers will gain the market NeXTConnection is giving away, though I do miss the informative ads.

DAVID ANDEL
Wiesbaden, Germany

As competition among PC vendors heats up, prices continue to drop, so the price/performance of white hardware is improving daily. And besides,

NeXT was getting ready to unbundle NEXTSTEP from the hardware price before it dropped hardware. Regarding system design, it is a factor in our rating system. - NW

Informix informs

In "Start Your Engines" (NeXTWORLD, November 1993), you mentioned the Informix Adaptor for DBKit, but unfortunately you forgot to mention that the Informix RDBMS, Informix-SE, and development tools have been available for black hardware since NEXTSTEP 2.1. Although there hasn't been a new NEXTSTEP 3.x version (black hardware), the 2.1 version is still running on 3.x.

There are also several users worldwide who are using the adapter in

combination with Informix-OnLine. The Rush Presbyterian St. Luke's Medical Center in Chicago is maintaining medical information with Informix-OnLine on a UNIX server and is using NEXTSTEP clients with DBKit. The Technical University of Vienna set up a computer-science lab with Informix products on NEXTSTEP and is developing software for an Austrian bank (see "Risk Manager," NeXTWORLD, October 1993).

In addition to the Dataquest market-share numbers you mentioned, a July 1993 IDC study on the UNIX relational-database software market lists Informix first in shipments with a 32.7 percent share and second in revenues with a 17.9 percent share.

I hope that we will be able to announce our RDBMS products for NEXTSTEP for Intel soon.

ALEXANDER KOERNER
Informix Germany
Ismaning, Germany

Book biting

I would like to address some of the criticisms that were detailed in the recent review of my book, *NEXTSTEP Programming: Concepts and Applications* ("Making Book," NeXTWORLD,

October 1993).

• "Nghiem skips many of the fundamental concepts that are covered in the Mahoney and Garfinkel book, such as menu-cell updating, Services provisioning. . . ." I agree that these ideas are important, but I would argue whether these concepts are more fundamental than the other concepts that I do cover. It would be redundant for me to cover those same concepts, since Garfinkel and Mahoney have already done a fine job of explaining them.

• "By the end of chapter four . . . Microsoft Windows and Macintosh programmers could be excused for bailing out at this point, wondering what the NEXTSTEP fuss is all about," and the summary reads that my book, "accomplishes the seemingly impos-

possible: makes NEXTSTEP programming seem boring." My intended audience is not people who get excited by technology, but rather people who program for a living and now plan to migrate to NEXTSTEP. They need to understand many other technologies in addition to NEXTSTEP, including OOA, OOD, class and object documentation, and debugging.

• "Even the common user-interface objects . . . are explained in program code instead of IB examples." The three core applications are completely built using IB; only the small examples at the start of each chapter are hand built. As I explained in the introduction, I emphasize the hand-coding so the reader can gain a deeper understanding of how the UI constructs work.

It appears that the reviewer had a different expectation of what the book should be (pure NEXTSTEP, such as Garfinkel and Mahoney's book) versus what the book actually is - and was intended to be - a NEXTSTEP book with a strong emphasis on OOD.

ALEX DUONG NGHIEM
Mansfield, TX

All ears

After posting a letter critical of NeXT's customer service to the Internet, and copying several key NeXT figures, I received a phone call from someone at NeXT. He was very eager to discuss NeXT's customer-service policies and we ended up speaking for almost a half hour. While I still feel there are improvements to be made, this experience has convinced me that NeXT really is starting to listen to its customers. The elitist attitude seems to be dropping by the wayside, and NeXT seems genuinely interested in what customers have to say.

ROB WYATT
Los Angeles

Continental divide

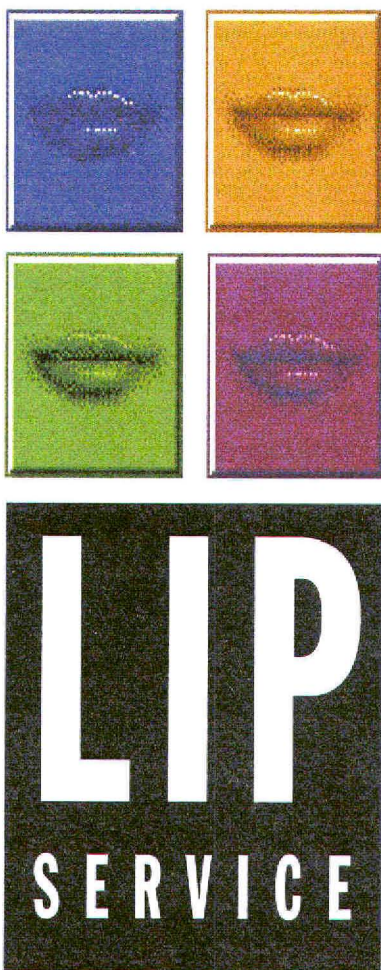
Thanks for the article on Xedoc ("From Down Under to Everywhere," NeXTWORLD, November 1993), but you are 1000 kilometers off on our location. We are based in Melbourne, not Sydney. From an Australian viewpoint, there's a little bit of a Sydney-Melbourne rivalry, so it's important to some folks that we're correctly geolocated. Besides, Sydney is a more common tourist destination, and I'd hate for visiting NEXTSTEP users to expect to find us during their holiday in Sydney.

BRETT ADAM
Xedoc
Melbourne, Australia

For the record

The caption identifying output samples from various printers in "Dots Enough" (NeXTWORLD, November 1993) was incorrect. The sample on the left is from a 400-dpi NeXT Laser Printer; the middle sample is from a 600-dpi HP LaserJet IV; and the sample on the right is from a 300-dpi HP DeskJet Plus.

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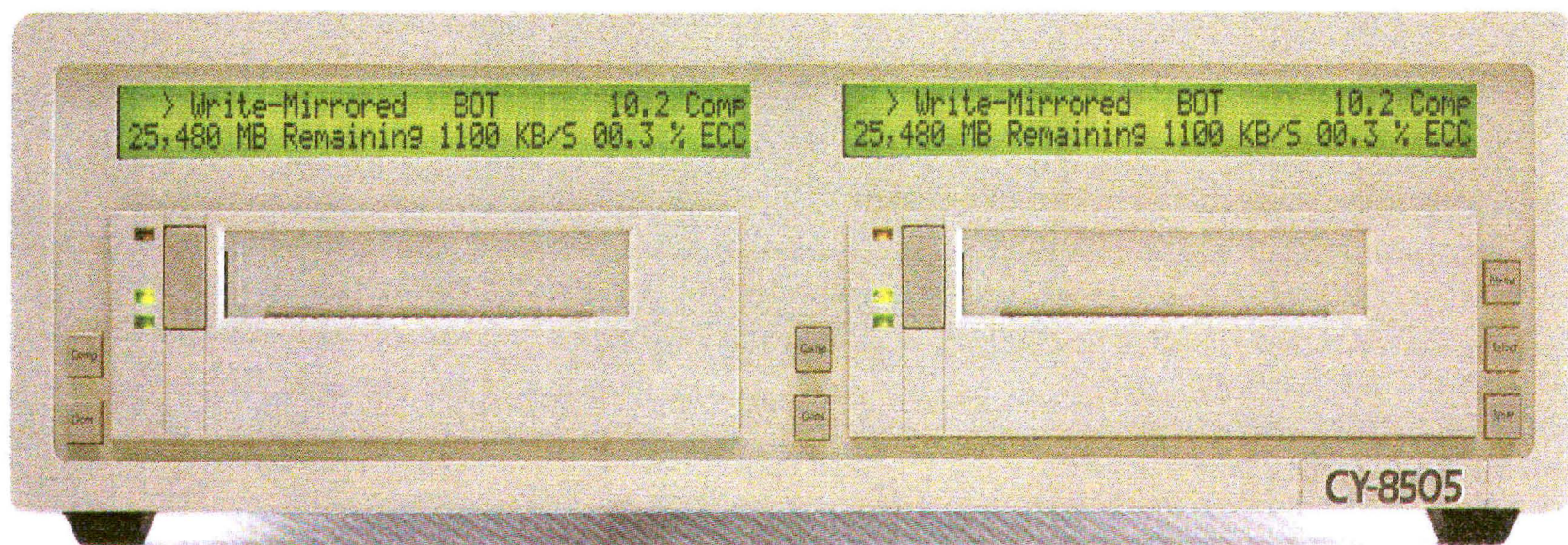
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S E R V I C E S A N D S O F T W A R E

IF GETTING CLOSE TO YOUR CUSTOMERS IS ONE OF THE keys to business success in the 1990s, Information Technology Solutions (ITS) is taking it literally. In late October, the NEXTSTEP consulting and services firm moved into a 6400-square-foot office suite on the 22nd floor of Citibank Towers, just a skip and a jump from the high rises along Chicago's LaSalle Street, where NeXT's financial-services customers are concentrated.

Actually, the new address is only a short distance from ITS's old loft space in the city's artsy River North district. But stylistically, it is much closer to the frenetic world of securities and options that has fueled the company's growth.

"We've moved beyond the garage-shop stage to become a serious corporate-consulting operation," says Ted Shelton, president and CEO of ITS. Flush with success from its outsourcing contract with Swiss Bank Corporation, NeXT's top commercial customer, ITS is gearing up for a major expansion in 1994.

The very week of the move, ITS was also hosting a visit to Chicago by Barclays Bank and Linklaters & Paines, two new NeXT customers based in Great Britain. Also, the firm's new chief operating officer, Bill Thomas, previously the manager of the 5000-seat NEXTSTEP installation at the Air Force, was settling in after a few weeks on the job.

Today, the 20-employee firm offers a broad range of products and services, including training, sysadmin, custom programming, and commercial applications. Having cornered the market in Chicago, ITS now has its sights set on New York and London, where it will establish branch offices. Shelton expects the firm to grow to as many as 50 employees in the coming year. "Our goal is to be the premier firm for NeXT consulting, services, and software for the financial community," Shelton says.

The emergence of ITS as a top player in the NEXTSTEP market is the natural culmination of Shelton's career. He had been a Steve Jobs follower since his first job writing assembly code for Apple II adventure games. In 1987, when NeXT was preparing its initial launch into the higher-education market, Shelton was working for the technology-commercialization arm of the University of Chicago, a charter NEXTSTEP site. In the process, he became familiar with Chicago's nascent NeXT scene.

But in 1990, when Shelton decided to take the plunge on a solo consulting practice, the NeXT services market was locked up by Businessland. Instead, he focused on Macintosh and Sun. A year later, though, when Shelton and partner Jamie Herre incorporated ITS, the Businessland relationship had soured and NeXT's Chicago office asked Shelton to provide services for a new NeXT customer called O'Connor and Associates.

The early work was basic services: installation, training, and data conversion. But Shelton wanted ITS to become a software company, and he got a boost when O'Connor contracted with ITS for the development of SpeedDeX, a contact-management system needed during the transition from Macs to NeXT machines at the firm. That project spawned other development projects, which turned into a suite of NEXTSTEP utilities, including Calculator Set, WorldClock, and Shout, in addition to SpeedDeX.

"We had this brave belief in becoming a shrinkwrapped-utilities developer. But as 1992 wore on, the reality was that the market was not growing fast enough," Shelton says. Meanwhile, the revenues from services and



Ted Shelton and the ITS crew have risen to new heights with both custom and shrinkwrapped development.

custom programming continued to grow. O'Connor merged into Swiss Bank, and the company moved from 50 to 1000 NEXTSTEP seats (today it has 1700). The bank decided to focus its own resources on developing strategic trading applications and to outsource the office-automation work to ITS.

According to Jeff Kwam, associate director of information technology for Swiss Bank, the bank has also used some of the larger NEXTSTEP-services firms, such as Pencom and Systemhouse, but considers ITS the best of the lot. "ITS consistently delivers what they promise," he says.

In addition to Swiss Bank, ITS's customer list includes most of the major Midwestern NEXTSTEP sites, including Motorola, NationsBank-CRT, First Chicago Bank, University of Chicago, and Rush Presbyterian Hospital.

Shrinkwrapped software is still a goal, but it now takes a back seat to corporate consulting. In fact, the new development is much more ambitious than the early ITS utilities. The cornerstone is Tempest, the code name for a collaborative office-automation software environment. Other pieces include Perennial Document Manager, which ITS recently acquired, and a new NEXTSTEP client for Hewlett-Packard OpenMail.

These are all pieces of a comprehensive office-automation platform that could extend beyond

today's leading collaborative environments, such as Lotus Notes. "Today's collaborative applications are for workgroups, but Tempest extends to the full enterprise. It is all about defining the 'info-structure' of a company," says Eric Wespestad, a long-time employee of O'Connor and Swiss Bank who joined ITS in early 1993.

Some components of Tempest are already in use at ITS customer sites. Later in 1994, Shelton says, ITS will provide the development libraries as a product so other consultants or customers can use them to build their own systems. After that, ITS will offer a unifying framework for users to plug together complex systems.

With its customer-focused strategy, ITS survived NeXT's transition year in better shape than most developers, but Shelton realized the company needed a seasoned operations manager. In Thomas, he found someone who has run a very large organization and who also understands and believes in the NeXT market. "I'm interested in innovative uses of NEXTSTEP, including wireless communications," Thomas says. "Can you imagine traders in the pits with an untethered connection to corporate systems?"

There's no shortage of vision at Information Technology Solutions. If there is any bottleneck, it is the shortage of available programming talent. "We are looking for as many as 20 more NEXTSTEP programmers for contracts we could take on if we only had the people," Shelton says.

If ITS can find the people, it certainly has the space. From its high-rise perch atop NeXT's biggest market, ITS knows that staying close to customers is what the NEXTSTEP business is all about. ♦

by DAN RUBY

Learning Curve

C O M M E N T A R Y

IN MY COMPANY'S MOVE DURING THE PAST YEAR AND A HALF TO REPLACE AN AGING AND NO-LONGER-SUPPORTED mainframe development environment, I have had the chance to learn about many aspects of client-server technology and object-oriented development, specifically in the NeXT environment. Here are a few points along my learning curve:

• *Demos are fluff, not reality.* Through the use of InterfaceBuilder and DBKit, it's extremely easy to develop a slick prototype of a potential application or show off a particular feature of the platform. Vendors love to excite company developers and management with their toys.

Unfortunately, though, this approach builds a false sense of when an application may be delivered. To date, I have not seen one situation in which NeXT's development tools were used in the delivery of an application as they are for a demo. In the world of mission-critical apps, developers have to jump through a lot of hoops to deliver a product. For example, new custom applications must be inte-

grated into existing legacy systems and still provide data to those systems. When working with a customer in developing the user interface of an application, there is no better tool to accomplish this than InterfaceBuilder. But customers have to be told that InterfaceBuilder only provides a graphical version of the interface and adding the functionality behind it will require a significant investment of time.

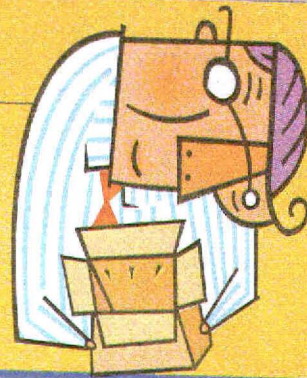
• *An operating system released for a new platform is actually Version 1.0, even if it is labeled 3.1.* Users

should expect all of the problems they would normally expect from a first-release product. In the October 18, 1993, issue of *PC Week*, Rick Jackson, NEXTSTEP product marketing manager, said that Release 3.2 incorporates more than 500 bug fixes since 3.1. I find it disturbing that a product would have been released with so many flaws, especially when the product is going to be counted on as an integral part of information solutions. In the future, customers and developers need to prod NeXT to provide releases with far fewer bugs and far more information on potential problem areas.

• *Demand backward compatibility.* When dealing with multiple custom applications, business users can't afford to go back and rework an application because of changes in a new version of the OS. A purist will contend that changes are needed to maintain integrity and take advantage of the latest, hottest technology. But in a business setting, resources must be used to continue new development rather than to go back and update an application just because of an operating-system upgrade. If I have an application that is running successfully under Version 3.0, I expect it to run better under 3.1 and even better under 3.2.

Unfortunately, this has not been my experience. An application that relies heavily on the Indexing Kit for data storage and access runs well under NEXTSTEP 3.0, but upgrading to NEXTSTEP 3.1 results in some show-

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NEW IN SHRINKWRAP

OCTOBER 1 TO NOVEMBER 1

CONNECTIVITY, COMMUNICATIONS, AND EMULATION

EXECUTOR 1.3
Fat-binary version of Mac emulator
ARDI
505/766-9115

DATABASE AND INFORMATION MANAGEMENT

CHARTSMITH 1.0
Charting and graphing application
BLACKSMITH
703/524-6147

CHECKSUM 1.1
Personal-finances manager
Sirius Solutions
415/957-9044

DATABASE BUILDER 1.0
Code-generating database application
QUICKBASE SQL 3.4
NEXTSTEP relational DBMS
SoftDesign Solutions
203/629-0970

IXADAPTOR 1.0
DBKit adapter to Indexing Kit
VNP Software
802/496-7799

TASKMASTER 1.5
Project-management software
Lighthouse Design
415/570-7736

TIMEFLIES 2.3
Fat-binary version of time-management app
Mouthing Flowers
206/325-7870

W-PLAN
Project-management software
workstation ag
41/1/828-9555

OBJECTS, PALETTES, AND KITS

DOLPHIN KIT 3.1
Object library
Dolphin Technologies
310/441-9021
FOUNDATION CLASSES 2.1
ObjectWare classes to speed development
Lighthouse Design
415/570-7736
SIMULATION KIT 1.0.1
Objects for system modeling and simulation
Doberman Systems
810/944-4329

PERIPHERALS

SERIALPORTSERVER 2.0
Multithreaded server for distributed serial communications
SERIALPORTSERVER LITE 2.0
Version of SerialPortServer without remote-access capabilities
Hot Technologies
617/252-0088

PUBLISHING AND GRAPHICS

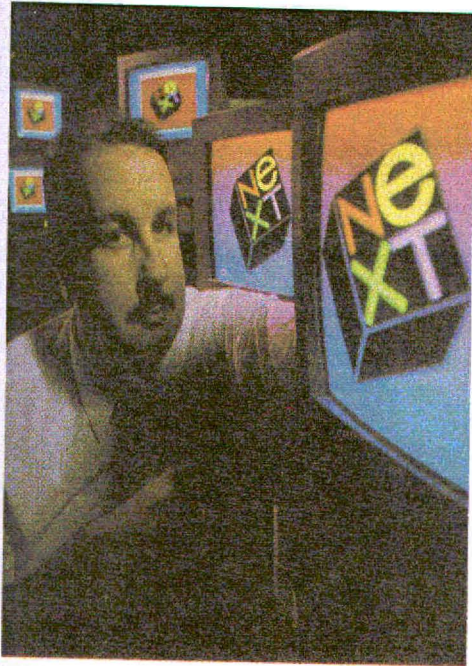
CONCURRENCE 1.2
Fat upgrade for NEXTSTEP 3.1 or later
DIAGRAM! 2.1
Fat upgrade for NEXTSTEP 3.1 or later
Lighthouse Design
415/570-7736

TOOLS AND LANGUAGES

ESPRESSO 1.0
Database-application development environment
Professional Software
617/246-2425

UTILITIES

SAFETYNET 2.0
Network file-system backup utility
Systemix Software
410/290-8813
SIMON SAYS 2.0
Fat upgrade of voice-recognition software
Metrosoft
619/488-9411



Eric Gwiazdowski has climbed the learning curve at a new Midwestern NEXTSTEP site.

Choosing a Programmer

BUSINESS STRATEGY

NO MATTER WHAT THE INDUSTRY OR LOCATION, EVERY NEXTSTEP CUSTOMER faces the same challenge once they decide to develop a mission-critical custom app: How to get AppKit wizards into chairs and crunching code.

Many customers and programmers report that it's hard to find experienced NEXTSTEP people. "This community is the size of a postage stamp," says Chris Younger, business development manager for Pencom Software, which hires developers to staff projects for firms that choose to go with a systems integrator (a future Real World article will focus on how to find an integrator). As object-oriented programming takes off and NeXT makes more sales, enthusiasm will breed a new crop of developers. In addition, universities are now bringing NEXTSTEP into their computer-science curricula.

But small can be beautiful – and useful. Firms looking for NEXTSTEP-savvy personnel usually don't have to go any farther than a referral from NeXT. Chrysler Financial, for example, followed NeXT's advice in finding programmers from Pencom. For San Diego-based financial trader Nicholas Appelgate, simple networking among friends brought together a core consultant team of former NeXT employees. Word of mouth is reliable and freely given, sources report. And one integrator is always on the lookout for developers who attempt to start small companies but can't quite make it.

Hooking up with groups like ProNeXT, the alliance of users at large sites, can bring names of good programmers bubbling to the surface, but hiring people directly away from firms can cause animosity and lower morale. "People get pissed off [in those situations] and remember," says Ted Shelton, president of Chicago-based IT Solutions. Future hires and information sharing between companies can be compromised.

Other alternatives for tracking down good help include contacting user groups, advertising in UNIX- or NeXT-specific publications, and, an increasingly popular choice, using the Internet and comp.sys.next news groups. Firms can post exact specifications and avoid having to filter through piles of résumés, knowing that good developers always stay on top of reading the Usenet groups. But act fast, says Sean Barkley, who hires for Systemhouse, because good programmers tend to go fast – another firm is looking to fill that seat as quickly as you are.

Is this then a seller's market? Not quite, according to interviews. Sales of NEXTSTEP are increasing, but there's always a lag between evaluation and implementation of any project, so there's been no rush to the bank for qualified programmers. In addition, shops that decide against NEXTSTEP after evaluation put many good programmers back on the street, so competition increases. In New York, for example, the loss of J. P. Morgan and scaling-back at Phibro Energy has led to "tough times," says Joe Barello, a long-standing developer who has done work for Chrysler Financial, Marble & Associates, and Adobe.

For firms, the trick is to network quickly enough after buying NEXTSTEP to attain an understanding of the strengths and weaknesses of the market. It also pays to make the purchasing decision in the proper economic context. "A lot of projects were put on hold during the recession" says Jules Roca, vice-president of sales and marketing for New York-based Responsive Management Solutions, which has placed programming consultants and hires at firms for 13 years. Good programmers tend not to be interested in working for a firm that puts out feelers and then pulls the plug.

In a flat market, competition between NEXTSTEP-literate developers increases, but others aren't drawn into it. And flat doesn't mean lifeless: Firms can find competent help in Chicago; Washington, D.C.; and London (current NEXTSTEP hot spots, according to sources); as well as in slower markets like New York. Also look at the markets for other platforms. Some programmers have a "religious" attachment to NEXTSTEP, while others

know to bring "one other thing that isn't NeXT-related to the table," says New York developer Tim Reed.

Although customers often want perfection – NEXTSTEP sophistication along with a range of experience to understand complex heterogeneous computing environments – enthusiasm and the ability to grasp new technologies are the key factors when deciding on a hire. Some customers conduct problem-solving sessions during interviews, while others check to see that a programmer is well rounded and has outside interests. "One guy, a Mach expert, played volleyball with the best of them. And I heard recently he's going after a Ph.D. in genetic biology. These people usually have incredible focus," says Pencom's Younger.

Broad experience, however, doesn't assure success. Despite varying project needs, customers and developers alike cited a familiar list of technologies as keys to finding a good NEXTSTEP programmer: Objective-C, Smalltalk, LISP, Sybase, Oracle, Mach, and others. C and C++ programmers sometimes don't have enough understanding of objects and often have to "unlearn" some practices. DOS and Windows experience is often useless.

Despite various needs and a mix of technologies, three distinct skill sets seem to be emerging in the market, and pay rates will commonly differ along these lines. According to a *Datamation* magazine industry survey, junior application/OS programmers average \$31,000, while application/OS programming managers command more than \$68,000. Programmers in financial services are averaging 8 percent to 14 percent above these figures, but NEXTSTEP programmers are topping these industry averages.

The least experienced programmers have some NEXTSTEP experience, maybe from working on a project or at a university, or have written a fair amount of object-oriented code. They may have some database experience. Hourly rates for these contract positions range from \$40-\$70. For staff positions, salaries range from about \$25,000 to \$40,000.

The bulk of working NEXTSTEP programmers are journeymen with up to three years of direct experience. They've often had 3-5 years of additional experience in Smalltalk and Objective-C before migrating to NEXTSTEP. They can have deep expertise in databases, interface design, networking, or a number of other specialty areas, or a broad range of experience in all areas. On an hourly basis, they can run from \$80 to \$175. Salaries fall in the \$50,000-\$100,000 range.

Premier programmers can offer all the above experience as well as expertise in specific business domains, such as financial trading or health care.

Many programmers working

in the NEXTSTEP market are well-known pioneers of systems in certain fields. They command anywhere from \$200 to \$300 per hour, while salaries can run "as far as you can possibly imagine," says Systemhouse's Barkley. ♦

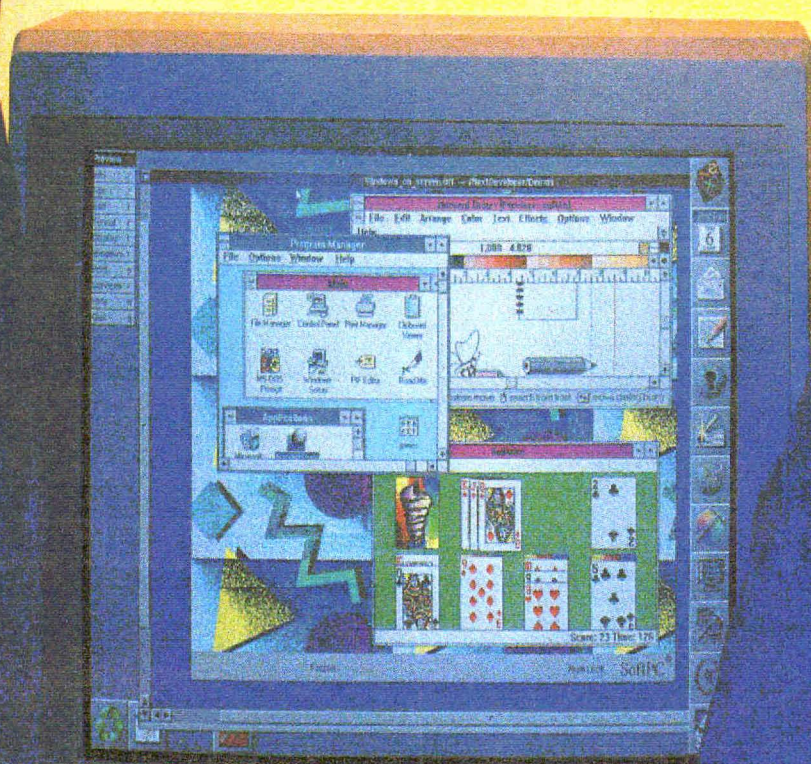
by ELIOT BERGSON

Real World is a continuing series that looks at the nuts-and-bolts issues of implementing NEXTSTEP solutions in large organizations.

HELP WANTED

CONTRACTORS (PER HOUR)

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YOUR CORPORATE SPREADSHEET SOLUTION



Scenario:

Wonder Widget Wholesalers, Inc. has its corporate headquarters and national sales organization in Chicago and 4 factory/distribution centers located in Atlanta, Boston, Phoenix and Seattle.

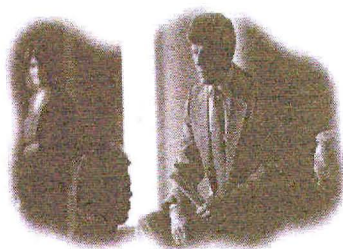
Problem:

WWW must balance production against inventory and demand. Managers must react quickly to quality fluctuations. Salespeople must cost products to stay competitive. Executives need a real-world view of new product introductions in an easy to understand format.

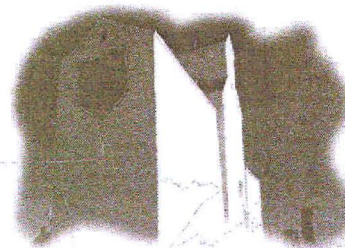
Solution:

Wonder Widget Wholesalers uses Mesa to track production, to update factory output in real time, to model costs and generate sales quotes, and to query the corporate database to easily generate reports and graphs based on current and historical information.

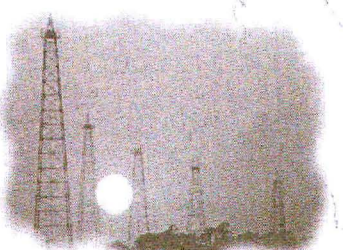
Seattle: A manager uses Mesa to determine material and man-hour requirements needed to fulfill orders over the next month taking into account current inventory levels.



Chicago: The MIS department has developed a custom Executive Information application that uses Mesa to query the corporate database, build graphs, and print reports. Mesa's Object Library Interface (MOLI) made developing this application easy through Palettized spreadsheet and graph Objects.



Boston: A corporate analyst uses Mesa to predict future product demand based on historical data queried from the corporate database.



Phoenix: The production department catches and fixes a quality problem within minutes based on real time production line information fed into Mesa.

PHOENIX

ATLANTA

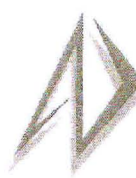


Atlanta: A salesperson uses Mesa to build a quote for a customer based on current costs of production, labor costs, and other variables so that WWW makes a profit yet still has a competitive price.

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Geiger Counter

ON THE NET

Sic transit gloria mundi. As the Great Source Code Debate raged on (and on and on) – complete with name-calling and broken friendships – the NeXT community bemoaned the announcement that Conrad Geiger is leaving NeXT. In probably the only area of unanimous agreement on comp.sys.next this month, “the voice of NeXT on the Internet” was hailed as NeXT’s foremost evangelist and one of the few who kept the faith through the dark days. Hopes are high that NeXT will move quickly to fill the void left by his departure.

One consensus to come out of the source-code discussion: NeXT should provide better documentation of object classes, lessening developers’ need to license source.

Computer Marketing 101. Rejoicing and confusion reigned as NeXT launched an ad campaign in *InfoWorld* and *PC WEEK*, running its eight-page brochure headlined, “Why would a perfectly sane and profitable company take a risk on object-oriented NEXTSTEP?”

Rejoicing because: a) NeXT has finally seen the light and is advertising to a “sane and profitable” target audience, and b) the piece underscores an actual product benefit (the answer to the headline: “The object is faster development”).

Confusion because, though NeXT bought a demographic edition of each magazine, including the brochure only in selected circulation subsegments, *InfoWorld* listed the brochure in the ad index in all copies.

Orphans of the storm. The specter of “beautiful magnesium ’030 Cubes relegated to fax-server duty, while we buy our workstations from Wal-Mart” rose as the NeXT community considered a world whose only hardware-upgrade path is provided by third-party vendors, who may or may not appreciate the original NeXT vision. The “I’ll never give up magnesium hardware” group may have to sacrifice performance. ♦

by STEVE FRICKE



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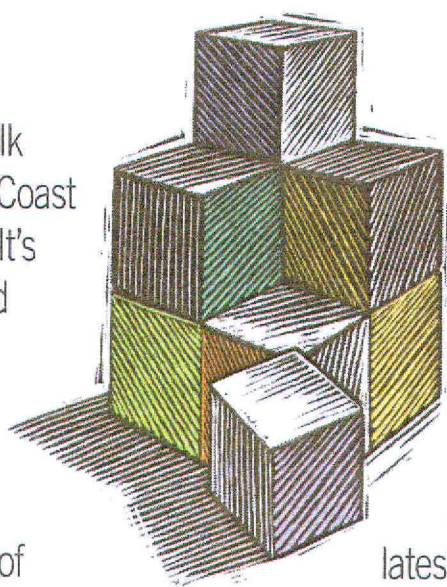
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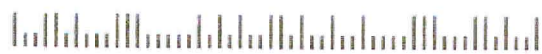
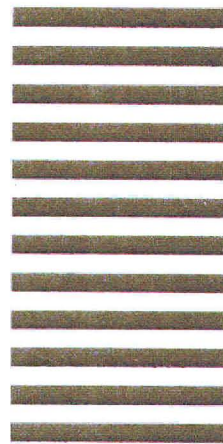
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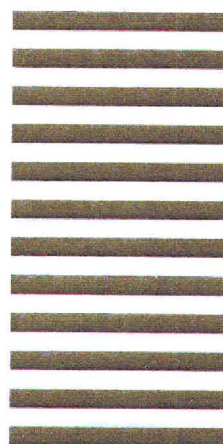
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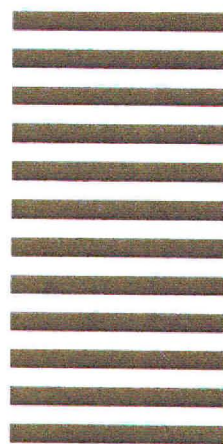
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What's Next?

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NeXTWORLD

☛ Learning Curve

stopping problems. NeXT willingly helped us resolve these issues, but we shouldn't have had to face them in the first place. To be successful, NeXT will need to recognize the importance of backward compatibility to a business and address it accordingly.

- *Supporting your users under this environment will require more resources than you've probably anticipated.* The move to a graphical user interface is a radical change for users in a traditional mainframe shop. Concepts such as multitasking, double-clicking, drag and drop, windows, and buttons will all require extensive training and ongoing support. The learning curve is steep. Look at how this issue will be handled and have a solution in place before deploying your first application.

- *The move to implement object-oriented development will require a greater commitment of time and people than you may envision.* Build a solid foundation. The process of learning object-oriented concepts is relatively easy compared with that of implementing those philosophies within the confines of the business. And it all must be in place before the first application is ever delivered, even though

this need conflicts with the business ethic that requires getting an application out the door and into the customers' hands as soon as possible.

To have a successful rollout, management must be trained and possess a thorough understanding of the client-server model of object-oriented development. If these people don't understand the payoffs and benefits of accepting this technology, it won't survive in their organization.

In addition, bring support personnel up to speed on the new technology and build foundation objects that all developers need: date, time, string, and intelligent-text fields. Establish consistent version-control and application-distribution techniques.

Finally, get the vendor to make an investment of time and people beyond the sale: The success of the client will have a direct effect on the success of the vendor. ☛

ERIC GWIAZDOWSKI is an information-systems analyst for a large Mid-western retailer.

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 - NeXTWorld, Best of Breed '93

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 - NeXTWorld, Winter '92

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Manifest Destiny

USER GROUP NEWS

FEW NeXT DIEHARDS WILL FORGET where they were on February 9, Black Tuesday, when they heard of the demise of black hardware. They certainly won't forget in Australia, home of OzNeXT, since these antipodal NeXT advocates had been pleading with Canon to bring NeXT hardware to Australia for nearly three years. And they did: The very next day, Canon and Data General announced marketing and support for NeXT workstations in Australia and New Zealand.

It seems that more than just the international date line separates Australia from the United States. As OzNeXT Vice President Aris Theocharides puts it, "Our members realize we are out here all alone, with practically no direct help from NeXT." Working with NEXTSTEP has become a matter of taking destiny into their own hands.

Australia's isolation made proprietary NeXT hardware a problematic

choice, but Dave Thomas, leader of the Sydney OzNeXT chapter and principal of Softpac, the country's leading NEXTSTEP dealer, says the Intel version could be a promising contender. "Australian users are used to being 11,000 miles from the closest support - so we're very much in favor of open systems."

Thomas also points out that Australia is a world leader in UNIX seats per capita, having an even higher number than the United States. He ought to know, because Softpac has been advocating UNIX since 1975 and Oracle databases since 1984. Comparing that to his missionary work for NEXTSTEP, a \$165,000 investment in seminars and marketing in the last year alone, he says, "People thought I was bananas then, too!"

Educational users in Australia were early adopters of NEXTSTEP. Nicole Kaiyan, a researcher at the Swinburne University of Technology,

is working on next-generation virtual environments on her Cube. The music department at La Trobe University is using NeXTcubes as IRCAM signal-processing workstations. Theocharides is based at Monash University.

Another leading light of the Australian user community is Xedoc, the NEXTSTEP development house noted for its ports of NetInfo to other platforms (see "From Down Under to Everywhere," *NeXTWORLD*, November 1993). Brett Adam of Xedoc, who runs the Melbourne OzNeXT chapter, says, "In a sense, we've been waiting three years for NEXTSTEP to finally become a reality in Australia."

Adam also runs the real backbone of OzNeXT, its e-mail list. In a country the size of the United States but with only 18 million people, OzNeXT is a virtual community by necessity. OzNeXTies also hang out on the Usenet's NEXTSTEP discussion groups. As a result, OzNeXT's Internet connectivity may be its most persuasive membership benefit.

The virtual user group has been working so well that OzNeXT has

only recently made plans for quarterly meetings, which were scheduled to begin this month.

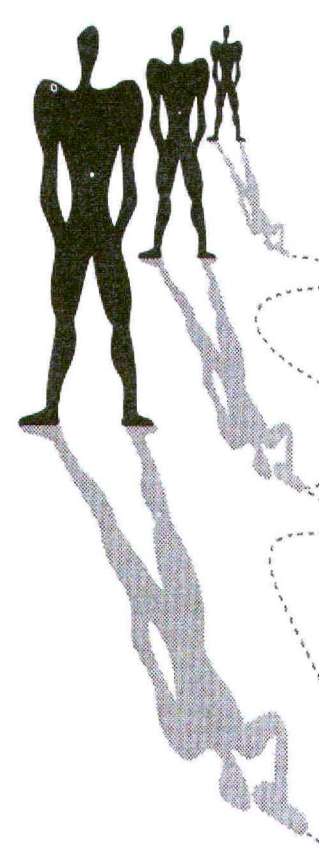
Since last summer (or winter, for the Aussies), the market has really picked up. Thomas believes that "we'll get higher market penetration versus NT in Australia than you will in the U.S."

Ideology, a Melbourne-based VAD, has added a new NEXTSTEP outfit under Rob Coulson, who says "it will take time to build up the market. Patience and cooperation with a bit of persistence will bring success."

OzNeXT leaders are convinced that they have turned a corner. The disaffected band of neglected NeXT users in Australia has recognized that it, not NeXT or Canon, will ensure the success of NEXTSTEP there. As Adam puts it, "OzNeXT has to take the responsibility to make NEXTSTEP succeed because no one else will." ♦

by ROHIT KHARE

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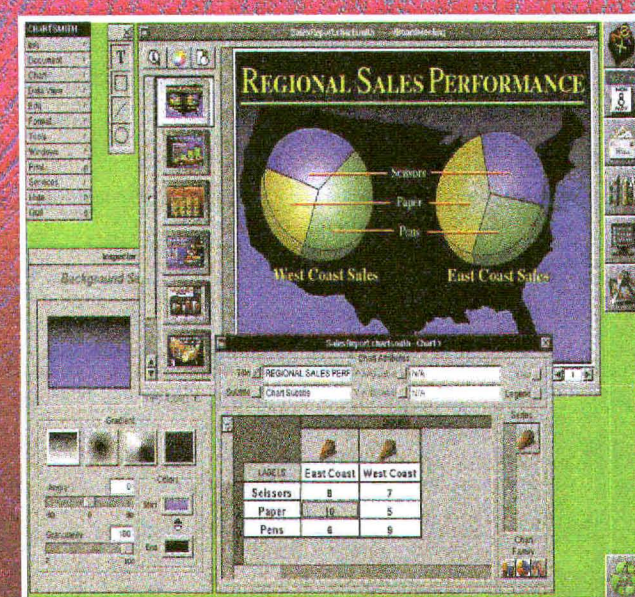
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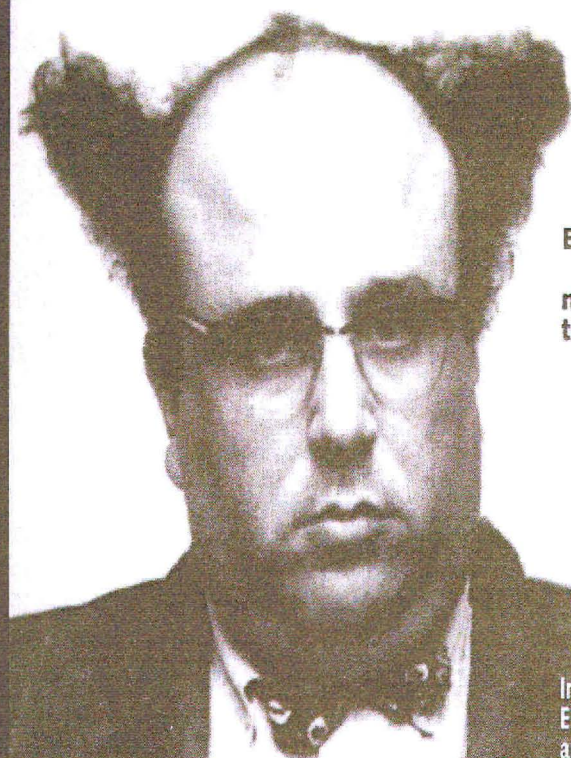
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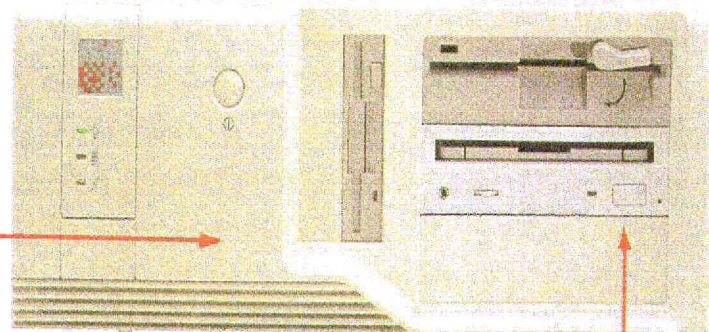
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NeXT Top Gun

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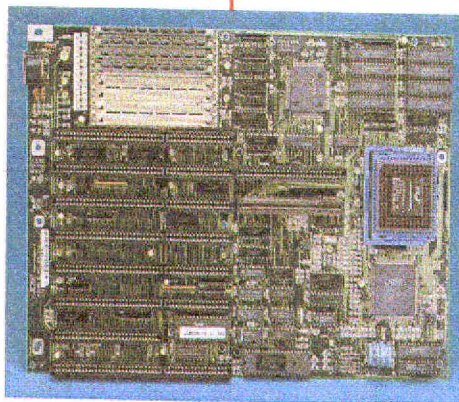
The most important factor in graphics performance is the architecture of the video frame buffer. It holds an image composed and stored by a host before sending out to the display. An ideal architecture is one that allows simultaneous data transfer in and out of the frame buffer independently at maximum speed. The benefits are not only blazing speed, but also the ability to display high resolutions such as 1600x1200 in 256 colors, 1152x900 in 64K colors, and 800x600 in 16M colors (true color).

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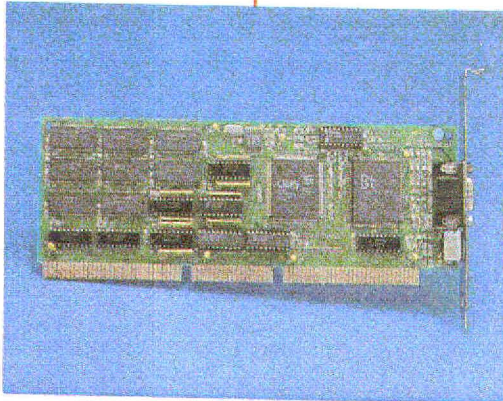


Both the JC/NX and JC/P9 are examples of systems with such an architecture. While the primary focus of the JC/NX is to bring top performance to NeXTSTEP, it is also a serious contender for high speed Windows and AutoCAD performance. In addition to the most powerful frame buffer, the JC/P9 is armed with the most complete and efficient set of graphics acceleration functions. Its reduced command set, similar to RISC technology in workstations, brings the best of two worlds, PC and workstation, to the desktop.

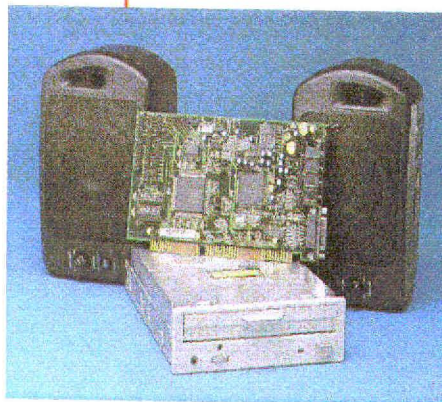
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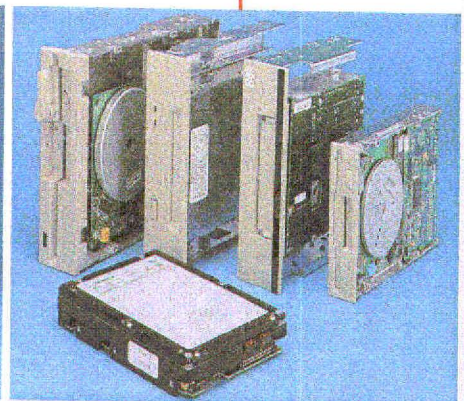
- JC2230 486/66DX2 Systemboard with power-saving features



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EXTRA

NEWS
IN BRIEF

GS Corporation launched its Collaggi database-publishing strategy with the announcement of Collaggi Palette, an extended workspace utility it recently acquired from Digital Expressions. The product, previously released under the name Dragbook, organizes frequently used document elements in a drag-and-drop palette. It is the first in a planned line of Collaggi products from GS, including a graphing tool, a database engine, application modules, and multimedia extensions, that will be rolled out in stages during 1994. GS: 415/257-4700.

Trilithon Software has picked up where RightBrain left off and become an authorized Adobe reseller of Type 1 fonts. The move by Trilithon, makers of the utilities FontCase and ViewFont, as well as Mac- and PC-font-conversion programs, helps solidify the font marketplace and offers one-stop shopping for NEXTSTEP users, according to the company. Trilithon: 415/325-0767; info@trilithon.com.

Hot Technologies has gotten a jump on PDO technology with its \$149 SerialPortServer 2.0, a multithreaded server that allows applications built with SerialPortKit to access peripherals anywhere on a network. Hot also offers a \$99 SerialPortServer Lite that lacks remote-access capabilities. All Hot products will be available from the *Electronic AppWrapper* in January. Hot Technologies: 617/252-0088; Robert_La_Ferla@hot.com.

ASI, Alembic Systems International, is now offering two new products. Tailor, an editing tool for PostScript and EPS files, allows users to graphically edit any PostScript document, including multipage files imported from any platform that outputs to PostScript. Users can manipulate any element in a file and then save it back in PostScript form. [CONTINUED ON PAGE 21]

NeXT takes
object story
to Comdex

by DAN RUBY and
DAN LAVIN

Las Vegas, NV – Playing for the first time on the floor of the nation's biggest computer trade show, NeXT fought to rise above the noise level at Comdex Fall 1993. Featuring NEXTSTEP 3.2, the Portable Distributed Object (PDO) system, and a range of third-party tools, the company made its case for object-oriented development among a sea of 2300 exhibitors, most focused on the mainstream personal-computer market. [SEE COMDEX, PAGE 21]

Mark your calendar

June 1994

Sun Mon Tue Wed Thu

- NeXTWORLD EXPO '94
- Moscone Convention Center, San Francisco
- June 20-23, 1994

NWX!

See story, page 20

The NeXT-SunSoft news broke at deadline. NeXTWORLD will provide full details and analysis in the February issue.

NeXT woos developers

by DAN RUBY

San Jose, CA – NeXT went a long way toward reassuring restless developers in a closed briefing here in November.

The program included detailed sales plans, financial results, and product plans, but "no announcements or surprises," according to one attendee. The invitation-only event included 46 representatives from 30 third-party companies.

"The overall mood was conciliatory toward developers. They recognize that it is not enough to have custom apps, that they can't succeed without us," said one at-

A giant step for NeXT-kind

SunSoft adopts
NeXT objects

by LEE SHERMAN

Redwood Shores, CA – NeXT's historic agreement with SunSoft, announced here November 23, leaves NeXT with a dual role as operating-system vendor and provider of open-systems technology.

Under the agreement, Sun will license portions of NEXTSTEP for use in a future version of its Solaris operating system, and NeXT will bring a native version of NEXTSTEP to Sun's SPARC-based computers in the second half of 1994.

As part of the agreement, Sun has made a \$10-million equity investment in NeXT. SunSoft Pres-

ident Ed Zander said the company is buying "time to market," acknowledging NeXT's two- to three-year lead in object-oriented technology over competing vendors such as Taligent and Microsoft (see related story below).

NeXT will define and publish a specification called OpenStep, which consists of a subset of the existing APIs in NEXTSTEP 3.2. Although details are still being worked out, the specification is expected to include all portions of NEXTSTEP that are independent of the operating system, including AppKit, DBKit, Display PostScript, distributed objects, and Objective-C. The specification, to be published by June 30, 1994, will be freely licensed to all comers in a move to make NEXTSTEP the standard operating and development environment for client-server systems. Talks have begun with standards bodies on administering the licensing process.

NeXT CEO Steve Jobs likened NeXT's decision to license its technology to the approach taken by

Solaris layers

Object Applications		
OpenStep Specification		
NEXTSTEP App Environment		
DOE Object System		
Solaris		
SPARC	x86	PowerPC

Adobe Systems with PostScript in the early 80s. PostScript is now the industry-standard page-description language.

Sun's decision to marry OpenStep with its Solaris operating system will come as a surprise to many in the open-systems community who have long viewed NEXTSTEP as a proprietary operating system. "I was surprised we could pull this off given our religious differences. We didn't know what church to get married in," said Scott McNealy, Sun's CEO.

Alliance sets object standard

by DAN LAVIN

Redwood Shores, CA – NeXT's agreement with SunSoft signals an industry realignment in the emerging battle over object standards.

"Our mission is to establish OpenStep as the alternative to [Microsoft] Cairo," said NeXT CEO Steve Jobs.

"Taligent [from Apple and IBM] is in danger of being relegated to the back room," said Craig Sultan, vice-president of Montgomery Securities in San Francisco. "Cairo may be most valuable for connecting applications together, with OpenStep viewed as the high-end robust solution."

The deal raises questions for the Common Open Systems Environment (COSE) initiative, an industry alliance aimed at providing a unified UNIX environment. According to SunSoft President

Ed Zander, COSE covers interfaces only for procedural, not object-oriented, applications.

Unlike COSE, the Sun-NeXT initiative is grounded in solid technical details, said Chris Stone, president of Object Management Group. "What we wanted to see happen for four years is finally starting to happen," he said.

NeXT and Sun will encourage other COSE members to adopt OpenStep. Hewlett-Packard is already working with NeXT on Object•Enterprise and may sign up as an OpenStep partner.

"Sun's announcement represents an endorsement of NeXT's technology leadership, something that HP has already recognized and embraced," said an HP spokeswoman. "HP is pleased that NeXT's products will now be available to an even wider audience." ♦

NS gets visualization tool

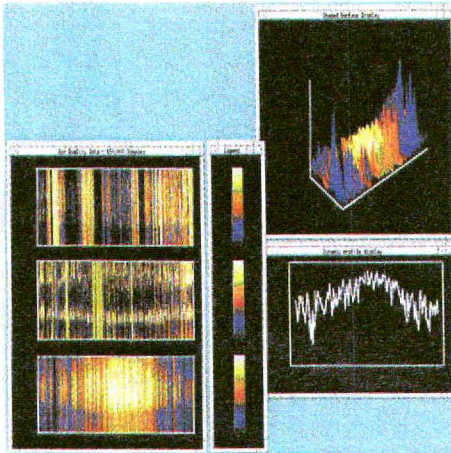
by SIMSON L. GARFINKEL

Boulder, CO – Visual Numerics is porting its high-end visual data-analysis application, PV-Wave Advantage, to NEXTSTEP at the request of Chicago Research and Trading (CRT), one of NeXT's largest financial customers.

The program "provides integrated analysis and visualization," said Matthew Powell, Visual Numerics' strategic alliances manager. "It takes previously disparate functions and combines them in one package."

PV-Wave Advantage can be used as a stand-alone app or as a basis for custom-app development. The system can link directly with database systems to perform 2-D and 3-D analyses of very large corporate databases.

The firm had not considered a port of the application until asked by CRT. "CRT hired our profes-



PV-Wave is a tool for visualizing complex data-sets from large relational databases. This screen shows the Motif version.

sional-services group to do a special port," Powell said. "Once something like that happens, we decide to go ahead and productize it, because the initial engineering is paid for by a customer."

PV-Wave Advantage is priced at \$6995 on Sun workstations, but a price for the NEXTSTEP version has not yet been set. The program should be commercially available in the second quarter of 1994.

Visual Numerics: 303/530-9000. ♦

Printer Works ships first NEXTSTEP models

by SIMSON L. GARFINKEL

Kentfield, CA – The Printer Works has completed development of a large-format, high-resolution printer and delivered the first beta unit to NeXT, according to company president Steve Roberts.

The printer, based on Canon's BX engine, can print up to eight pages per minute on paper up to 11 by 17 inches at a resolution of 600 dpi. It connects to white or black computers running NEXTSTEP through the computer's SCSI interface. Pages are rendered using NEXTSTEP's Display PostScript

interpreter and GS Corporation's eXTRAPRINT laser-printer driver.

NeXT is using the printer to print the master pages of its technical manuals, Roberts said. "If you look at the old manuals, they were run off on the original NeXT laser printer. This is quite an improvement."

Printer Works has set the suggested retail price of the printer, driver software, and bundled Adobe "right-to-print" license at \$3995. Production units were scheduled to be available in late December or early January.

Printer Works: 510/887-6116. ♦

Dolphin manages docs

by ELIOT BERGSON

Los Angeles – The workgroup-publishing market gained a new entrant in November as Dolphin Technologies announced that its Author! Author! document-management software will ship in early 1994.

Working directly with the NEXTSTEP File Viewer, the package is designed to transparently track and record changes to any text or image documents. Any number of users can share or read a document at the same time, but only one user can lock it for revision, the company said.

Author! Author! uses high-speed indexing technology to search and retrieve documents, even over multiple databases, and provides security through configuration options. The software reportedly works with an unlimited number of applications.

Single-user licenses cost \$295 per user; multiple-user licenses are \$995 per user. Dolphin Technologies: 310/331-9021; info@dolphin.com. ♦

Graphics punch for Intel

by PAUL CURTHOYS

Santa Clara, CA – New graphics cards have landed on the NEXTSTEP for Intel platform, and they pack a lot of power.

miro Computer, a subsidiary of the Braunschweig, Germany-based miro Computer Products AG, has introduced a line of miroCrystal graphics cards based on the S3 86C-series processors.

At the high end, the miroCrystal 32s offers 4MB of VRAM, 8- and 16-bit color at 1408 by 1024

pixels, and 24-bit color at 1024 by 768 pixels.

"The 32s allows you to run very high-res 24-bit color at a very high speed. It's the only recourse under NEXTSTEP for people with very demanding graphics applications," said Randall Stickrod, executive director of miro.

The miroCrystal cards start at \$229 and run to \$899 and come with a suite of bundled utilities. miro Computer can be reached at 408/727-1558, 408/988-2515 fax. ♦

WriteUp will support WordPerfect files

by PAUL CURTHOYS

In the wake of WordPerfect's announced withdrawal from the NeXT market in November, Anderson Financial Systems (AFS) moved nimbly to fill the gap, announcing that it would accelerate development of its WordPerfect filter for WriteUp, a word processor that the company is currently developing.

AFS's WriteUp/WP document-interchange bundle was originally scheduled for release this June, but delivery has been pushed up to March. With the filter, WriteUp users will be able to automatically open WordPerfect files and save their documents in the WordPerfect format.

The company is also planning to develop filters for Microsoft Word and WriteNow, said Michael Pizolato, chief technology officer

at AFS, but no release dates have been set.

Meanwhile, WordPerfect firmed up plans to ease users through its departure from the NeXT platform. In January, the company intends to ship an interim release of WordPerfect 1.0.1 that will provide a final round of enhancements and fixes. Changes will include correct mapping of the NeXT German keyboard, link-language files, fixes to the ASCII converter, the ability to save the paper size of the primary merge file during a merge, corrections to the use of the macro editor's extended characters, and updates to the French and German versions.

In addition, WordPerfect will continue to provide NEXTSTEP users with technical support for one year from the date of the interim release. ♦

Low-cost databases with IXAdaptor

by PAUL CURTHOYS

Cambridge, MA – With the release of VNP Software's IXAdaptor in November, NEXTSTEP users can now build low-cost single-user relational databases, according to the company.

A DBKit adapter that stores data in Indexing Kit files, IXAdaptor works in conjunction with Indexing Kit files and the DBModeler to function as a relational database.

IXAdaptor supports all of DBKit's features, including a subset of standard ANSI-SQL, joins, transactions, and the capability to bind custom objects to database attributes. For joins and updates,

IXAdaptor automatically builds an index for any attribute designated as a primary key or specified in a relationship. In addition, its ability to import and export flat files permits conversion between other data sources.

By functioning in Interface-Builder test mode, the company

said, IXAdaptor also lets developers quickly prototype database applications without having to select a platform or move to a more advanced, multiuser RDBMS.

IXAdaptor runs \$245 per seat. VNP Software can be contacted at 802/496-7799, 802/496-7790 fax; IXAdaptor_Info@vnp.com. ♦

Lighthouse revs apps

by ELIOT BERGSON

San Mateo, CA – The crew at Lighthouse Design had a busy fall.

The company in October shipped Foundation Classes 2.1, a library of 15 Objective-C classes designed to speed software development. The library includes a string class, an error-reporting class, and a set of collection classes for lists, sets, stacks, and queues.

Foundation Classes costs \$4995 for object code for five developers and \$9995 for source code.

Lighthouse also shipped TaskMaster 1.5, an update to its integrated project-management app that adds data compatibility with Microsoft Project and Claris MacProject, as well as support for mpx (Microsoft Project Exchange)

files. TaskMaster retails for \$1395.

And fat-binary versions of Diagram! 2.1 and Concurrency 1.2 have been released. The software sells for \$499 and \$995, respectively, but current registered users can upgrade for a "nominal" media fee, according to the company.

Lighthouse Design can be contacted at 415/570-7736; info@lighthouse.com. ♦



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Object Channel picks up members

by PAUL CURTHOYS

Redwood City - NeXT kicked off its new Object Channel program, which is designed to help NEXTSTEP systems integrators offer object-oriented expertise to corporate accounts, by signing on four new systems-integration firms in November.

Pencom Software, Dilan, Proxima, and Advance 2000 all agreed to work with the Object Channel

to integrate NEXTSTEP into the information systems of their business customers. NeXT will provide the new members with discounts on NEXTSTEP, sales assistance, and training for their support personnel.

"Customers benefit from decreased time to market of their custom applications, and systems integrators benefit from reusable code and the ability to take on more projects and increase rev-

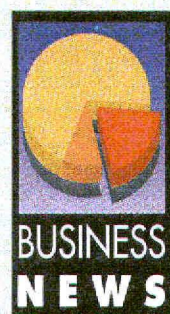
enues," said Bill Wesemann, vice-president of North American sales at NeXT.

NeXT will also supply the new members with an Object Channel representative, a NeXT employee assigned to support them as they work with customers.

Companies that are interested in joining the Object Channel should contact NeXT for further details at 415/366-0900, 800/879-6398. ♦

SCO pro takes helm of NeXT services business

by DAN LAVIN



Redwood City - Seeking to boost its services business, NeXT in November hired Angela Spear-

man as director of professional services, giving her responsibility for all NeXT training and customer support.

With Spearman's hire, her 35-person group moves back from the software organization to the sales and marketing organization. Spearman will report to Warren Weiss, vice-president of North American sales and marketing.

"Everything we do now at NeXT is a profit center. Her group

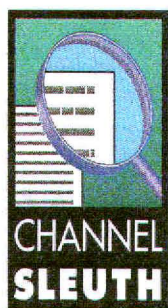
will be profitable by first quarter of 1994 and will represent about ten percent of the company's revenue," said Weiss.

The organization provides a range of services, including educational classes, premium support for developers and administrators, hot-line support for technical questions, and NeXT's new mentorship program.

Spearman comes from the Santa Cruz Operation (SCO), where she was previously director of SCO's 130-person technical support services and quality department.

"She knows more about UNIX in Intel than anyone else I've been around. SCO has fallen into all the holes surrounding these issues, and Angela's experience will guide us around them," said Weiss. ♦

DEALER DRY SPELL



Back when NeXT was still manufacturing hardware, the company set up a toll-free number so that individuals and small businesses could find dealers in their area. Today, the number is used to provide information about all NeXT products and services, including references to local dealers.

A call to 800/TRY-NEXT found a friendly NeXT representative with a list of supposed local dealers in the Connecticut, New York, and Boston areas that ranged from specialized systems integrators to Canon corporate.

While the Sleuth hoped to find dealers that sold configured NEXTSTEP for Intel systems, what he discovered instead was that the small dealer channel has been com-

pletely gutted by NeXT's switch to a software-only manufacturing and marketing strategy.

Although the Sleuth was assured by NeXT that the list had been recently updated, the results of the random phone poll were disappointing. One of the numbers was no longer in service, another said it might have some black hardware in stock but would have to check, another said it no longer sold NeXT products, and another, who specializes in graphics, admitted to having reverted back to its bread-and-butter Mac business.

With the demise of this channel, graphic-design firms, architects, realtors, advertising agencies, recording studios, and other small businesses are far less likely to choose NEXTSTEP.

Each month, the Sleuth will look at a different aspect of NEXTSTEP distribution.

Catalog puts spotlight on health care

Continuing its strong push into the health-care industry, NeXT released *NeXT in Healthcare*, a catalog of NEXTSTEP products targeted at the health-care market.

Scheduled to be available in January, the book opens with descriptions of three premier NEXTSTEP installations at hospitals, such as Mt. Clemens in Detroit, as well as an overview of NEXTSTEP itself.

The book focuses on outlining the assortment of NEXTSTEP health-care software. Everything from medical-information management systems to radiographic scanners to an on-line anatomical atlas is listed.

The catalog also details a variety of third-party productivity applications and a wide assortment of ObjectWare. ♦

ITS porting OpenMail

by ELIOT BERGSON

Chicago - Information Technology Solutions (ITS) has been tapped by Hewlett-Packard to develop a new NeXTmail application that will act as a user agent to HP's OpenMail system. The delivery date for the first phase of the project is late March or early April, according to Ted Shelton, ITS president and CEO.

That first deliverable will be able to talk directly to HP OpenMail from NeXTmail, obviating the cur-

rent need to either talk to OpenMail through SMTP or use the UNIX file system to store messages. Shelton said that in the fall of this year, the final product will be fully integrated into the OpenMail system, offering all the functionality of OpenMail clients, including access to bulletin boards, intelligent mail filtering, multiple message boxes, and shared attachments.

HP currently offers OpenMail on Windows, HP Vue, and Motif. ITS: 312/587-2000; 800/394-4487. ♦

New corporate user group takes shape

by ELIOT BERGSON

Following the example of ProNeXT, the alliance of users at corporate sites formed two years ago, a new and as-yet-unnamed corporate user group has sprung up among information executives at Midwestern NEXTSTEP sites.

According to Mike Adelson, project manager at Chrysler Financial, the group first met in August and consists of Chrysler Financial; Swiss Bank Corporation; Temerlin McClain; Pan-Canadian Petroleum; Abbott Labs; Rogers Cantell, a Toronto-based telecommunications partner of McCaw Cellular; and at least one other unnamed firm. A representative from ProNeXT spoke to the group at the first meeting on

basic organization issues and how to structure the group along the lines of the "object-oriented paradigm," Adelson said.

The group is not seen as a competitor to ProNeXT but instead as a way to ensure a common message to that group as well as NeXT. "We just wanted something for the Midwest, where we could get together easily and share ideas. All of us are within four hours of each other," Adelson said. The Midwest group will continue to be active in, and send representatives to, ProNeXT meetings.

The next meeting is scheduled to take place in Chicago in January. Users at Midwestern NEXTSTEP sites are welcome to contact him about joining, Adelson said. ♦

D.C. meeting ready, SF show set

by PAUL CURTHOYS

The NEXTSTEP community will have double the chance to meet and exchange ideas as NeXT launches the first-ever East Coast Developer Conference in Washington, D.C. this month, and NeXTWORLD Expo in San Francisco on June 20-23.

Keynote addresses from Steve Jobs and Paul Strassman, former director of defense information for the U.S. government, will kick off the developer conference, which will be held January 24-26.

NeXTWORLD Expo '94 will return to Moscone Convention Center in San Francisco. The three-day program will include conferences for NEXTSTEP developers

and users, a product exposition, meeting of user groups, and a curriculum of NEXTSTEP tutorials. A call for panel participation was distributed in November. To apply, contact the organizers at NWX_94_conference@next.com or 508/470-3880.

The East Coast Developer Conference offers four session tracks for NEXTSTEP information-system managers, system administrators, and developers.

One track, "NeXT in the Marketplace," gives managers an overview of the technical services and development opportunities under NEXTSTEP. "The Art of Design" sessions cover the principles of object-oriented design, while "A Closer Look" delves into NEXTSTEP's object kits and distributed

objects. And "Hardware is Inevitable" explores the various hardware platforms that NEXTSTEP can run on, as well as system-administration issues. General sessions and tutorials fill out the program.

Registration fees for the East Coast Developer Conference are \$595, and the tutorials cost an additional \$200 per session. Attendees will also have the opportunity to purchase a \$995 software bundle that includes the user and developer versions of NEXTSTEP 3.2, a single-user license to Borland's InterBase SQL database server, and the DBKit InterBase Adapter. For more information, call Digital Consulting, the conference organizer, at 508/470-3880 or 800/767-2336. ♦

BRIEFS
Continued

Demo copies are also available via ftp from cs.orst.edu and nova.cc.purdue.edu. The software sells for \$495 or \$248 educational. ASI is also now offering Xedoc's NetInfo network-administration tools for Auspex, HP, IBM, DEC, and SPARC servers. The package allows sysadmins to use NEXTSTEP's graphical administration tools to manage different UNIX workstations on a network. ASI also announced that its European subsidiary has become the exclusive U.K. distributor for the Epson NX. ASI: 303/799-6223; info@alembic.com. ASI Europe: 44/335/254-75; chris@alembic.com.

Gestel Italia in November shipped Version 1.2 of solidThinking MODELER, its 3-D modeling system. The company also moved into new offices. It can now be reached at Viale dell'Oreficeria 30/P, I-36100 Vicenza, Italy. 39/444/96.49.74, 39/444/96.49.84 fax; info@solid.gestel.it.

TimeFlies, even for those hip developers at Mouthing Flowers, who have released a fat-binary upgrade of the company's time-management app. TimeFlies 2.2 allows users to set alarms for sending e-mail, displaying a message panel, or playing a sound. Demo copies are on the archive servers sonata.cc.purdue.edu and cs.orst.edu; a licensed copy costs \$45 or \$24 for students, seniors, and disabled users. Mouthing Flowers: 206/325-7870; timebugs@mouthingflowers.wa.com.

Single Source, a systems-integration and software-development firm that has been an authorized NeXT dealer for two years, was ranked 248 in *Inc.* magazine's October issue on the 500 fastest-growing private companies. The firm provides project-management and development services for the commercial, manufacturing, and health-care markets. Single Source: 317/253-0665.

CKS, NeXT's advertising agency, has earned another kudo, this time in the *Communication Arts* 34th Design Annual. CKS was tapped for its design of NeXT's Evaluation Kit, which has a close-up of an InterfaceBuilder screen reflecting in a man's glasses. The image was used on the kit's book, video, disk, and cover packaging. The Design Annual is a compilation of editor's choice awards in a variety of advertising and promotional fields.

Comdex

[FROM PAGE 17]

"We're here to raise the flag for NeXT and to keep in front of the computer press," said Lauren Flanagan-Sellers, president of GS Corporation and one of eight third parties who participated in the booth. She added that traffic through the exhibit was heavy, ranging from existing NeXT customers to serious prospects to tire kickers.

Beyond the NeXT booth, NEXTSTEP was displayed on Intel systems in the exhibits for Dell, Epson, DEC, Data General, S3, and JCIS.

The unifying theme of the NeXT booth was extensibility, starting with a revised demonstration of PDO, which was used in a Black-Sholes pricing analysis. Many of the third parties showed applications that include object palettes and other links into customer-developed systems.

Exhibiting with NeXT were RDR, Athena Design, Lighthouse Design, GS Corporation, Pages Software, Blue Rose Systems, and Logibec/PSI. "It isn't just the usual suspects," said David Spitzler, a NeXT developer advocate. "It shows the vitality of the NEXTSTEP market."

By helping to defray the cost of the booth, the third parties con-

tributed to a broader presence than NeXT would have attempted on its own. In past years, NeXT has come to Comdex with private suites or receptions, but has not ventured onto the show floor.

Among PC manufacturers displaying NEXTSTEP, most grouped it with specialty environments for their most advanced hardware designs. Dell, for example, featured NEXTSTEP as one of four advanced systems along with Microsoft's Windows NT, SunSoft's Solaris, and IBM's OS/2.

According to Tom Hartsell, Dell's manager of advanced sys-

tems business solutions software, Dell's hardware support for NEXTSTEP will expand to four designs with base prices ranging from \$2000 to \$5000. "Dell intends to be a major player in the NeXT market. That's significant, because most of the major PC vendors in this building aren't even giving it a chance," he said.

By putting NEXTSTEP on equal footing with these other 32-bit operating systems, Dell is providing "a level playing field," Hartsell said. "One of these four systems is going to be the winner." ♦

Developers

[FROM PAGE 17]

ing featured presentations from NeXT senior executives and marketing managers, a panel discussion that included four third-party developers, and a two-hour feedback session.

According to Weissman, the two "tough questions of the day are the implications of SoftPC and how developers can align with NeXT's custom-application strategy." On the first issue, NeXT told the developers that it is important to support Windows applications, but it expects most customers to favor native applications

because they can integrate with custom apps.

To better align with NeXT's strategy, developers were encouraged to make their applications extensible with APIs and object palettes, supplement their software revenues with related products and services, and form partnerships with customers.

Missing from the agenda was any discussion of NeXT's own plans for application software, except in a trial balloon from Steve Jobs, who speculated that NeXT might want to acquire one or more third-party developers in the future. ♦

Canon nabs Epson execs

by DAN LAVIN

Canon Computer Systems (CCSI) is expected to aggressively enter the NEXTSTEP for Intel market after a trio of executives from Epson America joined the rival company in November.

At present, Epson is the leading supplier of Intel systems for the NEXTSTEP market. The executives and their former titles are Steve Huey, vice-president of PC product management; Bret Gutka, manager of strategic business; and Al Thomason, director of original product designs. Neither company would comment.

The development is unrelated to the product plans of Powerhouse, the company associated with Canon that was formed from the remnants of NeXT's hardware operations, according to sources.

CCSI, a division of Canon USA, is headed by Yasuhiro Tsubota, who founded Epson America. He left Epson in 1990 and consulted for Steve Jobs at NeXT before he took his position at CCSI. ♦

Sullivan's mouth closed over OpenStep

Lt. Sullivan thought something big was up when he bumped into SunSoft's Ed Zander and Bud Tribble in the NeXT lobby in late October. He knew he was right when he got an urgent message asking him to muzzle his curiosity. An early leak could kill the deal, he was told.

Still, he couldn't help squeezing Scott McNealy a little when he bumped into the Sun CEO at Comdex. Scott had little to say, other than "Tribble was the best hire we ever made." Now this column goes to press before the news is final, but it looks sweet for the NeXT faithful. One tip: Look for some other big names to sign up for OpenStep before the year is out.

The deals are the capper to an interesting month, beginning with Sullivan's stopover in San Jose for the exclusive Developer Briefing. He wasn't on the invite list, of course, but that was nothing that a late-night round-robin at the hotel bar couldn't cure.

Most of Sully's confidantes pronounced themselves pleased by NeXT's attitude and promised sales, though NeXT may be hedging slightly on its plan to move 100,000 units in 1994. The biggest surprise of the event was Steve's musings about possible software acquisitions, which left more than one developer muttering the words *Claris* and *Appsoft*.

Another surprise was the plan NeXT is putting together for European indirect distribution. The only problem is they forgot to run it past d'ART's Wilfried Beeck, who is understandably protective about his share of the lucrative German market. Back to the drawing board.

Also out of Germany comes the news that HSD's parent company, itself a subsidiary to a Berlin-based holding company, is reorganizing under German bankruptcy laws. Now Dave Peter and HSD-US are bidding for the parent's 51-percent ownership. That would make the U.S. firm fully independent for the first time.

Then it was on to Comdex, where NeXT's activities also had a third-party spin. You had to be looking for NeXT to find its booth at the Sands Convention Center, a major Comdex venue but decidedly secondary to the main hall, where the big boys slug it out with elaborate booths, production numbers, and gimcracks. The story there is that NeXT health-care developer Logibec had a line on space in the main hall, which it hoped NeXT would use to showcase third parties. At the time, NeXT planned only an off-floor suite, and it passed on the chance for the choice location. Later, when the third-party idea was resurrected and

NeXT applied for exhibit space, NeXT found itself on the periphery at the Sands.

Rather than compete with the PC riffraff, many of the UNIX and object environments didn't bother to show. Sun put in an appearance, but Hewlett-Packard didn't send its PCs or workstations. That's too bad, since Sullivan hoped to check out the hot HP Pentiums the company is assembling for Swiss Bank. Also missing in action was Compaq.

Data General showed its obligatory NEXTSTEP system, but there are disquieting signs out of Westboro. Only weeks after sending a technical team to NeXT to help finish PDO, the company may be growing weary of playing second fiddle to HP's servers. A reorg of DG's marketing department puts its commitment to NEXTSTEP up in the air.

Lt. Sullivan



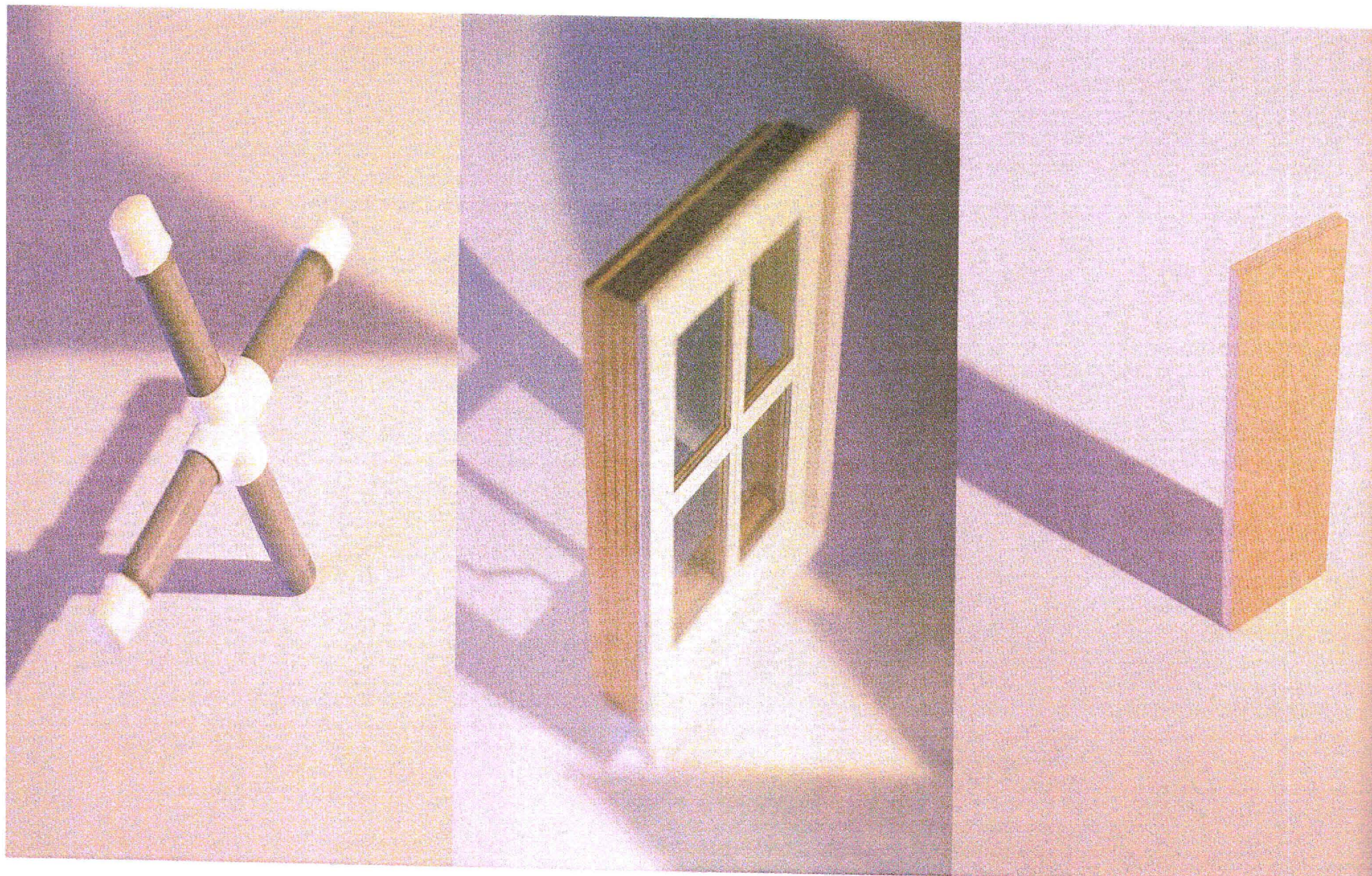
Speaking of Swiss Bank, Dwight Koop and entourage commandeered a limo for a whirlwind Comdex turn. Too bad they didn't manage to complete the contract for a Wingz-to-Mesa converter. Athena has other projects that can't wait, including Mesa for OS/2, which is expected to ship concurrently with Mesa 2.0 for NEXTSTEP.

Meanwhile, the bank continues as a source of people as well as money for the NeXT community. The latest job-hopper is Jeff Kwam, one of SBC's top IT managers, who will take his talents to Systemhouse. First assignment: rescue the ailing NEXTSTEP installation at Phibro Energy. The major integrators realize they need deeper management talent, an issue that's also hitting home at Pencom, which just reorganized its services group.

Finally, here's the scoop on the Aldus-Altsys double switch. The guts of FreeHand, the Mac/Windows illustration program from Aldus, will be replaced by Altsys's Virtuoso technology, while Virtuoso, the NEXTSTEP product, is to get the FreeHand moniker. Get that? Virtuoso 2.0, with multiple-page layouts, will ship first in early '94. The new packaging and minor Aldus marketing support will follow.

The renewed appreciation for developers continues as the focus shifts to the East Coast Developer Conference on Sully's home turf. To slurp in style from a Sully mug, slip him some news before the event at 415/978-3374 or e-mail to sullivan@nextworld.com. RSA public key available upon request.

MATERIALS



With the shipment of NEXTSTEP 3.2, SoftPC 3.1, and Portable Distributed Objects for HP-UX, NeXT's rebuilding year is over. Now it's the users' turn to start their own construction projects.

FOUNDATION

THE INTEL BETA TEST IS OVER – NEXTSTEP 3.2 HAS ARRIVED

BY LEE SHERMAN

Interim releases of software products are usually released without fanfare. But the arrival of NEXTSTEP Release 3.2 does much more than squash a few bugs (though NeXT claims to have wiped out more than 500 of them). With greatly improved compatibility with Intel hardware, it brings NEXTSTEP into the computing mainstream for what is really the first time.

NEXTSTEP 3.1, rushed into release last May as NeXT's first version for Intel processors, was in many ways a beta release. It supported only a limited set of PCs and add-on cards and lacked Windows compatibility. With 3.2, which shipped in November, NEXTSTEP users have a solid foundation for building their own custom environments.

End users will see little change in their day-to-day work with NEXTSTEP. But if they are running the system on white hardware, drivers for popular sound and graphics cards will allow users to enjoy the same CD-quality sound and high-resolution graphics that owners of black hardware have enjoyed for years.

"The two major issues addressed are Microsoft Windows interoperability with SoftPC 3.1 and expanded hardware support," says Rick Jackson, director of product marketing at NeXT. In addition, NeXT released its Portable Distributed Object (PDO) system for Hewlett-Packard servers almost concurrently with NEXTSTEP 3.2 (though it comes in a separate shrinkwrapped box), providing advanced support for objects in a client-server system. (See the related articles on SoftPC and PDO.)

DRIVER EDUCATION

On the hardware-support front, NeXT has added new driver categories as well as the first official release of DriverKit, NeXT's object-oriented framework for developing device drivers.

NeXT expects a cottage industry to develop around DriverKit, as systems integrators move to meet the need for device drivers for the many hardware configurations in the Intel market. DriverKit provides an object-oriented framework for writing drivers, in which new drivers can be subclassed from existing ones. It offers support for whole new classes of drivers that weren't in previous versions of the operating system, including – at last – full support for 32-bit true-color graphics. Release 3.2 also includes a long list of drivers in the categories of sound, SCSI, graphics, and networking (see the chart, "NEXTSTEP 3.2 drivers").

Brent Terry, manager of technology integration at Pencom, says the DriverKit has cut at least one-third off of his development time, because he no longer has to worry about APIs to particular UNIX operating systems and can instead concentrate on talking directly to the specific device. He's seen the typical UNIX driver reduced from 6000 lines of code down to 1000.

"One of the best features of having NEXTSTEP on Intel is that you don't have to wait for some card manufacturer to convince NeXT to write a driver. You can just do it yourself," Terry says. The shorter development cycle also lowers costs, making it possible for smaller vendors, who might otherwise not be able to afford to develop a driver for NEXTSTEP, to do so.

DEVELOPER SUPPORT

With NEXTSTEP 3.2, NeXT has realized it must support other languages beyond Objective-C. Support for the more standard C++ is provided in the form of the GNU lib++ libraries. Modifications to the HeaderViewer and ProjectBuilder applications are also designed to improve interoperability with other development environments.

A brand-new application called FileMerge began its life as a utility for detailing source-code changes between two files. Because it includes support for both

ASCII and RTF files, NeXT expects that it may also be used by ordinary users for contracts and other legal documents.

Many of NeXT's OEM partners who have been sitting on the fence, including Compaq and NEC, are planning to deliver systems based on NEXTSTEP 3.2. NeXT has begun an improved testing process, under which vendors can verify their own systems simply by running a new application called the NEXTSTEP Third Party Testing Program. "It gives third parties a chance to verify that their system is compatible with NEXTSTEP," says Jackson. "Ultimately, we will provide this information to the customer base."

NEXTSTEP 3.2 arrives fully tested and ready for deployment, having already been seeded to over 100 developers and 20 direct corporate accounts. Installation has been simplified and system administrators can now perform a network installation using a special boot floppy and installation server. Many of these early users have found the new release to be much more stable than previous versions. System administrators at large sites are finding that the combination of support for a wider variety of Intel hardware, the promise of PDO in extending the benefits of NEXTSTEP to HP servers, and the ability to run legacy applications on the same machine as custom apps all greatly decrease the risk in choosing NEXTSTEP.

PRIME TIME

Dwight Koop, executive director of information technology at Swiss Bank Corporation in Chicago, had kept his users on NEXTSTEP 2.2 while waiting for a version that he felt was ready to be deployed throughout his organization. "I'm thrilled that 3.2 has made it to the point where it is a releasable major new UNIX operating system," he said.

Missing features and concerns about stability prevented Swiss Bank from embracing earlier versions of NEXTSTEP 3.0, but Koop now believes that NeXT's efforts have begun to pay off. NeXT still lacks the resources and the access to proprietary software to be able to test it as thoroughly against new versions of the operating system as the company does with shrinkwrapped applications, but NeXT appears to be working more closely with its major customers in order to ensure that it is meeting their product requirements. One sign of this is the inclusion of a new Product Feedback application in NEXTSTEP Release 3.2 that walks customers through a survey of their experience with NEXTSTEP and can be e-mailed, mailed, or faxed back to NeXT.

Large sites like Swiss Bank, with their mission-critical requirements, move more slowly to adopt a new version of an operating system, because their custom applications are more likely to break under the new software and they can't afford the downtime. "You don't want to divert the attention of the people who are building your proprietary application to a cycle of testing, recompiling, and re-releasing of software," Koop says.

Another concern is Swiss Bank's reliance on Improv and WordPerfect, two applications whose future on NEXTSTEP for Intel remains in doubt. Koop says the inclusion of SoftPC 3.1 provides at least a partial solution to this problem.

Besides improved stability, Release 3.2 has a more finished feel, because of the more extensive on-line help seen throughout the system, particularly in the PrintManager application.

With the release of NEXTSTEP 3.2, NeXT has delivered an object-oriented framework for client-server computing that runs on industry-standard hardware and squarely addresses issues of interoperability on many different levels. When NEXTSTEP for HP's PA-RISC arrives in mid-1994, NeXT will have fulfilled all of its major promises made during its transitional year.

Now NEXTSTEP customers can take over, building their own systems on top of a solid foundation of software technology. ♦

LEE SHERMAN is a NeXTWORLD contributing editor.

NEXTSTEP 3.2 DRIVERS

With the release of NEXTSTEP 3.2, a raft of new drivers is available for users with white hardware. The chart below lists the NEXTSTEP 3.2 drivers in four categories: graphics, local-area networks, SCSI, and sound. For additional information on these drivers, request the most recent *NEXTSTEP Hardware Compatibility Guide* from NeXTanswers, NeXT's automated information-retrieval system.

Several third-party developers have also been working on drivers that aren't included in NEXTSTEP 3.2, but at press time, only Pencom, an Austin, Texas-based consulting and systems-integration firm, had announced its offerings. According to Brent Terry, Pencom's manager of technology integration, the company has completed three

drivers and is finishing up a fourth. Two of those drivers were written to support Unisys machines and are available from Pencom now, says Terry. Pencom developed the other two on a contract basis for miro Computer and Tseng Labs to support their graphics cards.

NeXTanswers: Send e-mail to nextanswers@next.com with the two-word subject, INDEX HELP, or call 415/780-3990 to receive documents by fax. For further help, contact NeXT Technical Support at 800/848-6398. Pencom: 9050 Capital of Texas N., Austin, TX 78759. 512/343-6666, 800/736-2664, 512/343-9650 fax; info@pencom.com.

by PAUL CURTHOYS

CARD	EXPANSION BUS	VENDOR
GRAPHICS		
ATI Graphics UltraPro for ATI 68800	VESA and EISA	ATI Technology, 33 Commerce Valley Dr. E., Thornhill, Ontario, Canada L3T7N6. 905/882-2600, 905/882-2620 fax.
Chips & Technologies Wingine	N/A ¹	Chips & Technologies, 3050 Zanker Rd., San Jose, CA 95134. 408/434-0600.
Compaq QVision 1024/E, 1280/E	EISA	Compaq Computer Corporation, P.O. Box 692000, Houston, TX 77269. 713/370-0670, 800/345-1518.
Intel JAWS	N/A ²	Intel Corporation, 5200 N.E. Elam Young Pkwy., Hillsboro, OR 97124. 503/629-7354, 800/538-3373.
Number Nine GXE	VESA	Number Nine Computer Corporation, 18 Hartwell Ave., Lexington, MA 02173. 617/674-0009, 800/438-6563.
STB Horizon for Cirrus Logic GD542X	ISA	Simply The Best Systems, 1651 N. Glenville #210, Richardson, TX 75081. 214/234-8750, 800/234-4334, 214/234-1306 fax.
S3 86C805 and 86C928	N/A ³	S3 Technologies Company, 8895 McGaw Rd., Columbia, MD 21045. 410/290-5773.
Tseng Labs ET-4000AX	ISA	Tseng Labs, 6 Terry Dr., Newtown, PA 18940. 215/968-0502, 215/860-7713 fax.
Standard VGA	ISA	Various
LOCAL AREA NETWORKS		
3COM EtherLink III (3C509)	ISA	3COM Corporation, 5400 Bayfront Plaza, Santa Clara, CA 95052. 408/764-5000, 800/638-3266, 408/764-6740 fax.
3COM EtherLink III (3C579)	EISA	
Intel EtherExpress 16, 16TP, and 16C	ISA	Intel Corporation, (see above for contact information)
Intel TokenExpress ISA/16s	ISA	
SMC EtherCard PLUS Elite 16 (8013)	ISA	Standard Microsystems Corporation, 80 Arkay Dr., Hauppauge, NY 11788. 516/435-6225, 800/762-4968, 516/273-2136 fax.
SCSI		
Adaptec 154x B, C, and CF	ISA	Adaptec, 691 S. Milpitas Blvd., Milpitas, CA 95035. 408/945-8600, 800/959-7274, 408/262-2533 fax.
Adaptec 174x B and C	EISA	
Bus Logic BT-542	ISA	Bus Logic, 4151 Burton Dr., Santa Clara, CA 95054. 408/492-9090, 408/492-1542 fax.
Bus Logic BT-747	EISA	
DPT 2011/90, 2011/95	ISA	Distributed Processing Technology, 140 Candace Dr., Maitland, FL 32751. 407/830-5522, 800/322-4378, 407/260-5366 fax.
DPT 2012/90, 2012/95	EISA	
DPT 2021	ISA	
DPT 2022, 2122	EISA	
SOUND		
Compaq Business Audio	CPU Board	Compaq Computer Corporation (see above for contact information)
Intel GX/Professional CPU-Board Audio Support	CPU Board	Intel Corporation (see above for contact information)
Media Vision ProAudio Spectrum 16	ISA	Media Vision, 47300 Bayside Pkwy., Fremont, CA 94538. 510/770-8600, 800/845-5870, 510/770-9592 fax.
Vision Pro Studio 16	ISA	
Microsoft Sound System	ISA	Microsoft Corporation, 1 Microsoft Way, Redmond, WA 98052. 800/426-9400, 206/882-8080.
Standard PC speaker	CPU Board	Various

¹ NEXTSTEP 3.2 supports the Chips & Technologies Wingine board in Epson's NX, Progression, and Progression NX computers. Add-on cards with the Wingine board are not currently supported. Epson America, 20770 Madrona Ave., Torrance, CA 90509. 310/782-4000, 800/374-7300.

² Intel JAWS is supported in 3.2 for Dell 450DE/2 DGX computers. Add-on JAWS cards are not currently supported. Dell Computer Corporation, 11209 Metric Blvd., Austin, TX 78758. 512/728-3500, 800/247-6821, 800/727-8320 fax.

³ NEXTSTEP 3.2 provides a driver for integrated S3 86C805-based and 86C928-based displays in DEC MTE d2 computers; Dell M- and L-series computers; HP Vectra N-series, NI-series, and XM-series computers; and IBM ValuePoint 466DX2/S, 466DX2/D, and 466DX2/T computers. Add-on cards with integrated S3 graphics are not currently supported, but NeXT plans to support some of these cards in future releases. Digital Equipment Corporation, Digital Dr., Mail Stop MK01-2J25, Merrimack, NH 03054. 800/438-4316, 800/524-5694 fax; Dell Computer Corporation (see above for contact information); Hewlett-Packard, 3000 Hanover St., Palo Alto, CA 94304. 415/857-1501, 800/752-0900, 415/857-5518 fax; IBM Corporation, Research Triangle Park, NC 27709. 919/543-5221, 800/426-2968.

Source: NeXT

ARCHITECTURE

SOFTPC 3.1 INTEGRATES MICROSOFT WINDOWS INTO NEXTSTEP

BY DAN LAVIN

Most NEXTSTEP users today are pragmatic. The goal is to get the job done, and the elegance of the solution may be secondary. If the right software tool already exists, it shouldn't have to be reinvented under NEXTSTEP. Well, it doesn't anymore, now that NeXT has teamed up with Insignia Solutions to offer the first version of SoftPC for NEXTSTEP that can really run Microsoft Windows.

Microsoft Windows: Love it or hate it, you can't ignore it. Especially now that you get SoftPC 3.1 for next to nothing as a piece of locked software on your NEXTSTEP 3.2 distribution disk. (The confusing version numbers are coincidental.) At \$249, less than half the cost of the old SoftPC for black hardware, it opens the door to a vast library of productivity software.

Despite its name, SoftPC 3.1 is a radically different product than its predecessors. For starters, it runs Windows applications well and accesses Novell networks seamlessly. The old version product was an emulation product for running DOS on non-native computers. Now it runs DOS and Windows on their Intel home turf.

"SoftPC used to be a compatibility solution. Now it is a productivity solution," says SoftPC Product Manager Mark Munford.

The old performance problem is gone. Using software developed by NeXT, Insignia boosted graphics performance to more than 80 percent of pure Windows performance on Intel. The company expects to find a receptive market. "We used to have 15-percent penetration of the NeXT base," Munford says. "With the new product, we hope to be used on 25 percent or more of all NEXTSTEP systems. We want to be a ubiquitous utility for NEXTSTEP."

But why, you may ask, should you need any software to run PC software on a PC? Because SoftPC integrates DOS and Windows under NEXTSTEP. If you can endure a cold boot every time you want to switch environments, you don't need SoftPC. But if you want to switch effortlessly (well, nearly so) and cut and paste data between apps on the two platforms, SoftPC will let you do it.

DOS applications that are no longer available in current versions for NEXTSTEP – to say nothing of the other DOS and Windows standards that were never available – are instantly up and running inside your NEXTSTEP workspace. It's the next best thing to native versions.

Of course, nothing is ever perfect, and SoftPC does have a few blemishes. Not every DOS and Windows program will run, and, depending on your mode of operation, cutting and pasting may not be as automatic as you'd like. We'll consider the limitations in a future review.

MODES AND MORE MODES

Every copy of NEXTSTEP 3.2 comes with a full demo copy of SoftPC 3.1 on the disk. The demo version works for 30 days, after which users can call and get a license number and full documentation for \$249. There is no upgrade pricing for former users of the black-hardware version. (In fact, there will be no new version of SoftPC for black hardware. It will be supported in its current state and sold at its old price of \$549 indefinitely.)

The SoftPC license includes not only Insignia's code but MS-DOS 5.0 and Windows 3.1 as well. Insignia's licensing agreement with Microsoft allows the company to literally modify Windows source code to optimize it for other environments, which it has done for Microsoft itself for Windows NT, and for HP-UX and Solaris with its SoftWindows product, due out in a few months.

There are two ways to run SoftPC: either within a NEXTSTEP window or by taking over the full screen. Full-screen mode is significantly faster because it bypasses Display PostScript and the demands of NEXTSTEP completely. But the in-a-window mode is more convenient for interoperability and compatibility.

Toggleing between modes is easy to do, but there are certain limitations with each. In full-screen mode, the window is resizable on the fly, but the size of your in-a-window mode Windows screen is fixed for the duration of your Windows session. Also, SoftPC lets you hot-key between full-screen and in-a-window mode, but once you switch to full-screen mode, you can only go to an inactive-window mode that permits only cutting and pasting.

Cutting and pasting text between NEXTSTEP and Windows apps is easy in the in-a-window mode. Graphics are copied using Grab or other screen-capture utilities. There's no cut and paste to NEXTSTEP when in full-screen mode. Windows application links using DDE (Dynamic Data Exchange) and OLE (Object Linking and Embedding) work fine but are not tied into NEXTSTEP.

PERFORMANCE

In full-screen mode, applications write to the PC's native VGA graphics hardware, which yields near-native performance. It's more complicated in the in-a-window mode, in which the software has to deal with NEXTSTEP's Display PostScript screen graphics. Using some technology called Interceptor that NeXT developed for its NEXTIME video-display software, SoftPC is able to blast data right to the screen. Result: Windows performance about 80 percent as fast as in a native environment.

It is easy to see the effect of Interceptor by overlapping a screen element such as a menu onto a running SoftPC Windows screen. Display PostScript kicks in and performance drops dramatically. (It rebounds when SoftPC is uncovered again.) This doesn't happen when the NEXTSTEP cursor moves over the Windows window; it simply turns into a Windows cursor.

The Interceptor technology is the breakthrough over previous versions of SoftPC, in which the Display PostScript problem left the program unacceptably slow for running Windows.

Another key improvement over the previous version is the inclusion of Insignia's SoftNode software, which permits SoftPC to access NetWare networked drives on NetWare file servers through the use of Novell NetWare IPX and Novell LAN Workplace DOS TCP/IP.

SOFTPC 3.1 AT A GLANCE

PROCESSOR

- Real mode as provided by the '486
- DPMI-compliant Protected mode
- 32-bit Windows DPMI-compliant programs
- Math coprocessor support

MEMORY

- Expanded memory up to 32MB
- Extended memory up to 16MB

DISPLAY

- In-a-window
 - Windows 3.1
 - VGA text mode only
 - CGA text and CGA graphics
- Full-screen
 - Windows 3.1
 - VGA (only on tested hardware)
- NEXTSTEP
 - 2-bit grayscale
 - 16-bit color

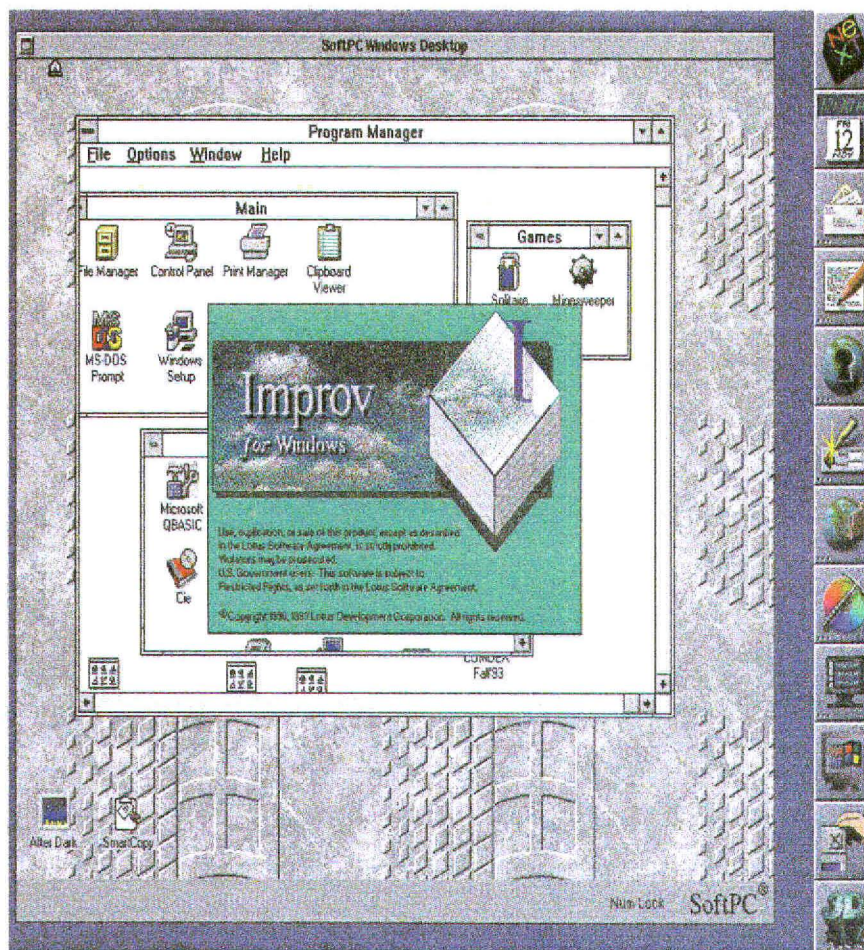
PRINTING

- Full support through UNIX lpr
- Supports PostScript and HP LaserJet emulation
- LPT1, LPT2 supported

SERIAL PORTS

- COM1, COM2
- Output to serial ports

SoftPC provides vast options for configuring file systems and physical drives. It automatically sets up a large UNIX file that acts like a hard drive. In addition, SoftPC can access the DOS partition on a hard disk, the one you would use if cold booting into DOS rather than NEXTSTEP. You can also designate any UNIX directory tree as an FSA (File System Access) drive. Using this option, all the files created by DOS are readable as individual entities by NEXTSTEP, and vice versa, which is very useful for sharing files between operating environments.



Using the same Interceptor technology developed for NeXT's NEXTIME video architecture, SoftPC runs at 80 percent of native speed in the in-a-window mode.

Communications ports have been improved to support 9600 baud on a regular basis. Printer support includes a variety of PostScript and non-PostScript printers to meet the needs of a range of DOS or Windows applications. You configure how much memory you want your virtual PC to possess. SoftPC supports extended and expanded memory up to 32MB.

Other functions, including the method for setting preferences, remain basically unchanged, though a full on-line help facility has been added.

SOFTWARE COMPATIBILITY

SoftPC 3.1 runs most but not all Windows and DOS applications. These caveats get a little complicated for non-Intel experts, but SoftPC supports Real- and Protected-mode DOS applications and Standard-mode Windows applications that comply with the DOS Protected-mode interface. It does not run applications that require Windows Enhanced mode. These exceptions involve some important programs, including FrameMaker and WordPerfect 6.0. (Insignia says that some Enhanced-mode applications, such as Improv, will run even though they say they require Enhanced mode). Graphical DOS programs, as opposed to character-based ones, will only run in full-screen mode.

Full-screen mode is supported on most hardware configurations listed in the *NEXTSTEP Hardware Compatibility Guide*, though some graphics subsystems, including Compaq's QVision, are problematic at this time.

While all these exceptions sound complicated, most standard DOS and Windows programs run well. Munford says that additional support and the schedule of future upgrades to SoftPC will be determined by the market acceptance of the product.

That may depend on the ratio of NEXTSTEP purists to pragmatists. NeXT and Insignia are betting that many users are willing to sacrifice a small measure of elegance for a big helping of functionality. ♦

DAN LAVIN is senior reviews editor at NeXTWORLD.

STRUCTURAL INTEGRITY

THE PORTABLE DISTRIBUTED OBJECT SYSTEM BRINGS BIG IRON TO THE NEXTSTEP EDIFICE

BY SIMSON L. GARFINKEL

The NEXTSTEP platform is no longer a single-family dwelling. Following through on one of the major promises of last year's NeXTWORLD Expo, NeXT shipped its Portable Distributed Object system (PDO) for Hewlett-Packard's PA-RISC UNIX servers in November. Data General will deliver another version of PDO in January for its AViiON workstations and servers, and more ports are expected later this year.

As Steve Jobs promised last May, PDO lets developers use NeXT's Distributed Object system to communicate directly with object servers running on other UNIX platforms as if the objects were running on the NEXTSTEP desktop. The network fades away, hidden by a seamless layer implemented on top of NeXT's Objective-C language.

PDO lets a program running on a relatively slow NEXTSTEP-based desktop computer tap into the powerhouse of HP's top-of-the-line multiprocessing mainframes. With an appropriate server, PDO lets programs running on remote computers perform complex calculations in a flash, access remote devices, or directly interoperate with other applications that don't run on NEXTSTEP itself.

"It enables us to take advantage of the power of other platforms," says Matt Peron, systems officer at First National Bank of Chicago, a PDO beta site. "Our processing demands are increasing, probably faster than the hardware can keep up. If we have the choice, we can go to larger and larger systems, that's great."

WHAT'S THERE

Most people think of NEXTSTEP as a slick graphical user interface, layered on top of the Mach operating system and the proprietary NetInfo network-management facility. To get PDO, NeXT took out those three parts, creating a system that could let NEXTSTEP object servers run on top of other operating systems.

PDO is both a development environment and a run-time system. The basic developer building blocks include four key libraries: NeXT's Core Classes (Object, List, HashTable, Storage, and NXStringTable); the NEXTSTEP Distributed Objects Classes library (NXConnection and NXProxy); NeXT's streams library, a unified system for dealing with data stored in files or in-memory buffers; NeXT's Zone malloc library, which gives programmers control over memory within an application, allowing them to improve memory performance; and the NEXTSTEP defaults system.

PDO programs are compiled with a version of the NeXT Objective-C compiler (GCC v. 2.4) and debugged with the GDB debugger. Developers can compile PDO programs from the command line of the non-NEXTSTEP system or remotely from a system running NEXTSTEP with NeXT's ProjectBuilder and the Portable BuildServer (a part of PDO that runs on the remote system). For the first time, NeXT is also including the GNU sources directly on the release disk, "so you don't have to ask for another disk if you need the source," says Kate Smith, PDO project manager.

To make use of a PDO object, the client program, which might be running on a NEXTSTEP workstation or on the PDO server itself, issues a TCP/IP request to NeXT's Portable nmserver (another PDO program) with the name of the server and the name of the object with which it wishes to communicate. If the server program isn't running, the Portable nmserver starts it. The nmserver then gives the original requesting program a pointer to the PDO server and gets out of the way, allowing them to communicate directly with each other.

NOT THAT PORTABLE

While PDO itself is portable, applications written to take advantage of it might not be, says Van Simmons, president of VNP Software, a Cambridge, Massachusetts-

based NEXTSTEP developer who was also a PDO beta tester. The problem, says Simmons, is that NEXTSTEP, DG-UX, and HP-UX are all different flavors of UNIX, with different system calls, different versions of the make program compiler, different arrangement of include files, and so forth. Although the NEXTSTEP libraries and languages are the same across the platforms, moving an object server from NEXTSTEP to another operating system is not a simple recompile.

Thus, PDO won't let NEXTSTEP developers "achieve world peace," says Avie Tevanian, NeXT's head of software development. On the other hand, he adds, PDO still makes it relatively simple to take compute-intensive objects out of NEXTSTEP programs and run them on faster servers.

"Remember, the language is the same as on NEXTSTEP. The foundation classes are the same. It really works," says Tevanian.

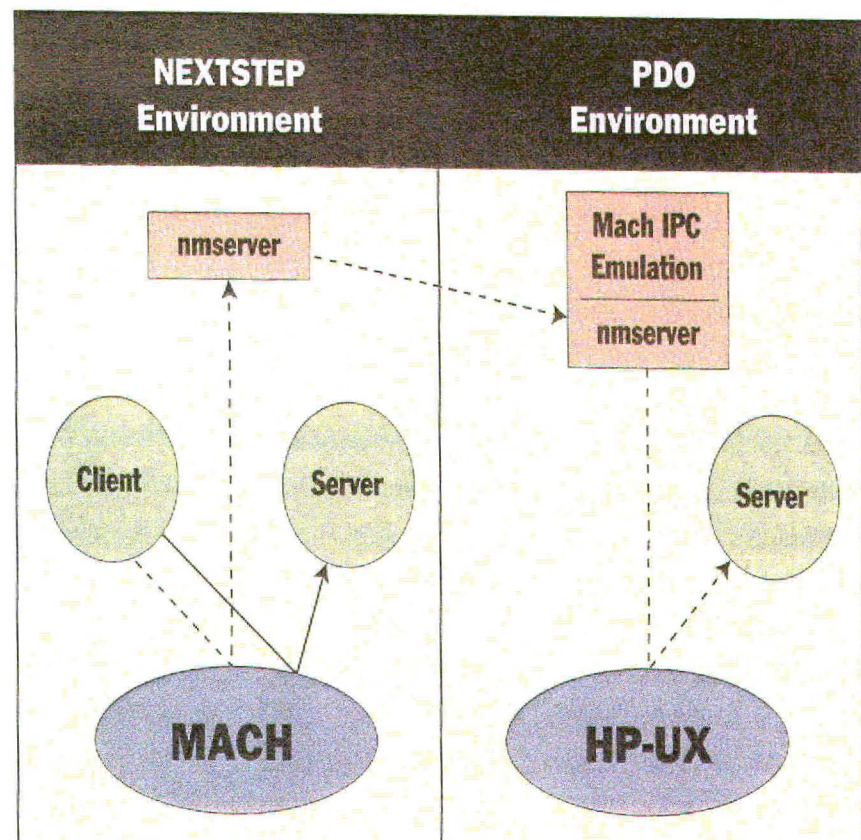
Indeed, customers who have tried it say that NeXT's claims are accurate. "Our nastiest port was from the NeXT black box to HP-UX - that's probably as nasty as it gets - and that port took about a day," says First National Bank's Peron.

Nevertheless, one incompatibility that hangs over PDO is the lack of support for multithreaded servers. Under NEXTSTEP, a server can be set up so that each client program requesting a distributed object gets its own execution thread. This is important for servers vending large, complicated objects that require a considerable amount of CPU power; it lets the server respond to more than one request at a time. But under HP-UX, PDO does not support multithreaded servers - an issue that has been a point of concern for some customers.

"Eventually, I think it probably will be [a problem]," says Peron. In the short term, he hopes that the five-fold speed improvement his objects get from moving from the black box to an HP 735 will more than make up for the lack of concurrence.

PDO also gives companies an easy way to migrate to the network-based object-oriented environment that has become so desired in recent years, says NeXT's Smith. "Let's say you are an organization that deals with foreign currencies and you have a program that a lot of employees use for billing or currency exchange of some kind. Currently, an employee might look up the exchange rate on a sheet of paper that has been faxed to them that day and calculate it with an adding machine. With PDO, one can have a currency-exchange object that runs on a central server. The exchange rates get set as often as needed in that one object by an administrator. The application running on the employee's desk messages that object to find out the current rate and then does its thing. The messaging is transparent; it looks like the object is part of the application on the desk, so information is centralized."

As the business grows and its needs become more complex, NeXT could put additional objects on the server: objects to calculate interest rates and rates of return, or sophisticated objects that perform complex analytics written by in-house programmers, Smith says.



A client program running under NEXTSTEP can use NeXT's Distributed Object system to communicate with servers running on the same Mach system (or on other networked systems). Using PDO, that same client can communicate through NeXT's nmserver program with a PDO system running on an HP-UX system.

PDO blends well into a fast-moving development cycle in which small changes need to be propagated instantly to hundreds of users at computers around the globe. Instead of deploying a new version of an application program, the developers can simply put a new object on the central server, and applications in the field would automatically get the new version of the object the next time they ran.

PORTABLE PLANS

Because PDO does not use the graphical environment, it is portable to most other operating systems that provide basic POSIX functionality (that is, virtual memory, TCP/IP-based networking, and multiple processes).

NeXT plans to ship PDO for Sun's Solaris OS next March or April, says Smith. "Today it's HP, in January it will be Data General, and later, Sun and others. It will give NEXTSTEP programmers more flexibility in deployment of applications to servers that have useful features that client machines don't have, like high performance, central location of data, and fail-safe mechanisms."

Indeed, with little effort, PDO could be ported just as easily to Microsoft's Windows NT, Novell's NetWare, or DEC's Open VMS. Then, no matter what the environment, users could build complex structures on a foundation of NEXTSTEP. ♦

SIMSON L. GARFINKEL is senior contributing editor to NeXTWORLD.

PORTABLE PRICING

PRODUCT DESCRIPTION*	PRODUCT PLATFORM	PRODUCT	LIST PRICE
PDO Release 1.0 for HP-UX 9.0 Department Servers	HP Apollo 9000 Series 700 Workstation Models 715 or 725; HP 9000 Series 800 Business Server F- or G-Class.	N5594	\$2500
PDO Release 1.0 for HP-UX 9.0 Branch Servers	HP Apollo 9000 Series 700 Workstation Models 725 or 755; HP 9000 Series 800 Business Server H- or I-Class.	N5595	\$5000
PDO Release 1.0 for HP-UX 9.0 Corporate Servers	HP 9000 Corporate Business Server 890 Models 890/1, 890/2, 890/3, and 890/4.	N5596	\$10,000

*All products include CD-ROM and English documentation.

Have you heard about NeXT's "strategic developers"? Officially, they don't exist. Officially, only Registered Developers exist. But some developers do get preferential treatment: invitations to functions like last September's DBKit Advisory Board meeting or November's Executive Briefing for Developers; attention from one of the few remaining NeXT developer advocates; early access to software releases; and preferred access to NeXT's technical-support line. Best of all, most strategic developers don't pay a cent to Redwood City for these privileges.

There's just one catch: You can't apply to be a strategic developer. You have to be chosen. And the more goodies that NeXT bestows upon your firm, the stronger the confidentiality agreements.

It used to be that the best way of getting quality technical information from NeXT was to hang around the parking lot at 900 Chesapeake Drive and offer to buy an engineer a beer. That's hardly a rational system either, but at least every developer had the same opportunity. Today, it takes more than beer.

Fact: When NeXT develops new technology, developers who get information early on have an advantage over others. This handicap is especially significant when the technology supersedes a current product, as is the case with the future version of DBKit. Developers who are building programs that depend on the intricate workings of DBKit need to know about the upcoming changes so they can avoid wasting time and money.

Fact: NeXT's new Registered Developer Program requires strict confidentiality on the part of the participants. Mandating a wall of silence between developers in the community strengthens the appearance that NeXT is cutting a different deal with each developer, playing favorites, and picking winners.

Fact: NeXT continues to play developers against each other. In recent

months, for example, NeXT offered to help secure funding for a prominent West Coast developer to write a spreadsheet that would compete with Athena Design's Mesa. Wouldn't NEXTSTEP users be better off with a working word processor rather than a third (or possibly fourth) spreadsheet?

Of course, playing favorites is not unique to NeXT. Certainly Apple and Microsoft have done it for years, but those companies are not struggling for their survival. Unfortunately, only the largest, most successful developers get special treatment. The problem, of course, is that most of today's strategic developers were once little more than two-bit players themselves. Can NeXT cultivate the Lighthouse Designs of the future through preferential treatment?

I'm not saying that NeXT should be giving away free software and technical support to anybody who wants to write another 3-D drawing package. Software and support cost NeXT money, and not all programs are in line with the mission-critical custom-applications strategy upon which NeXT has gambled its survival. Any operating-system company needs some leeway to support the applications that it thinks will do the most good for the platform.

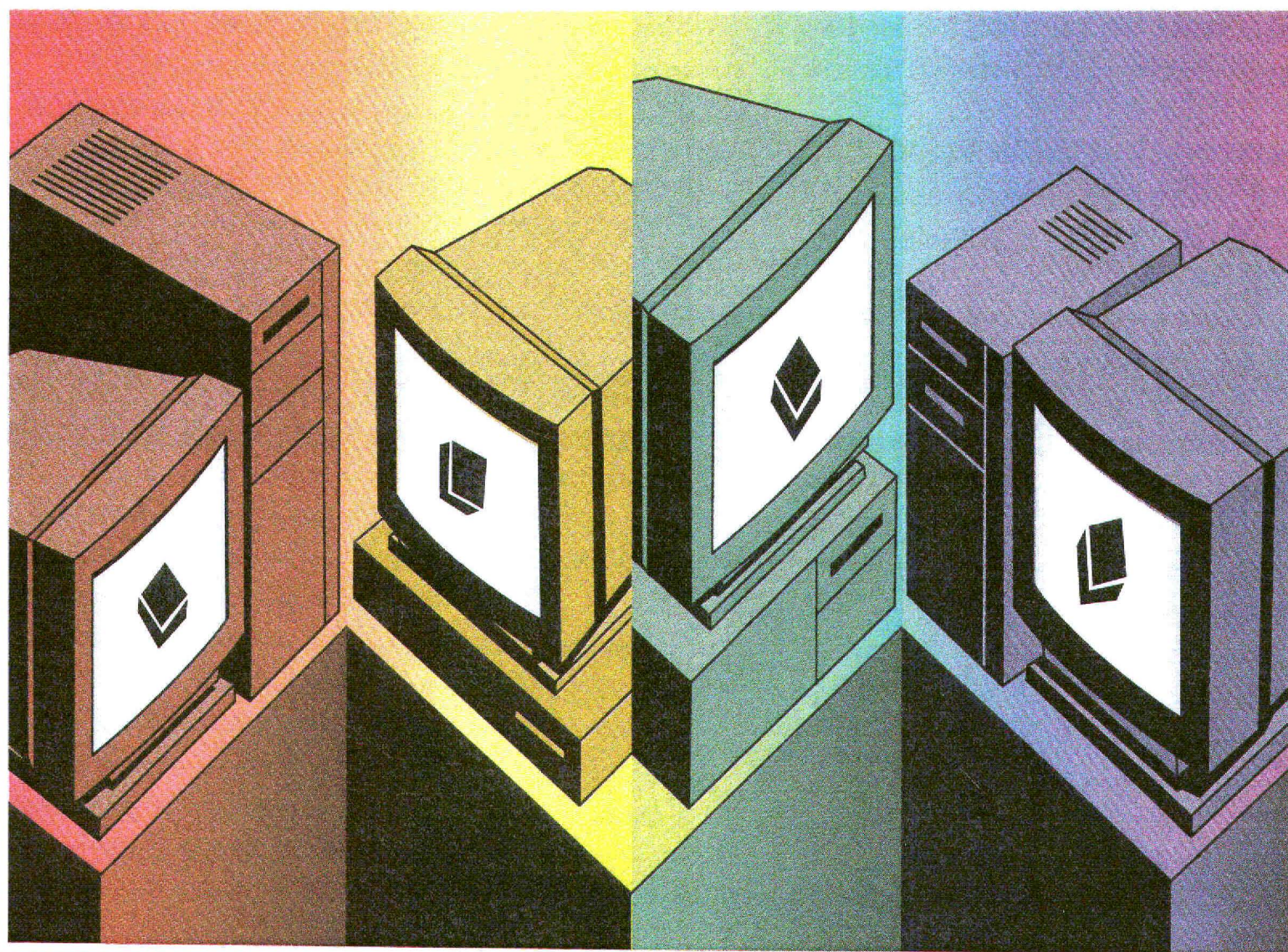
That said, it is also true that NEXTSTEP is still badly in need of applications, and practically nobody developing a shrinkwrapped program can afford to shell out the hefty sums NeXT charges in-house developers. Even with a 40-percent developer discount, NEXTSTEP user and developer editions are still far too expensive. Developers should get software at cost – and at the same cost for all. ♦

SIMSON L. GARFINKEL is the senior contributing editor to NEXTWORLD.

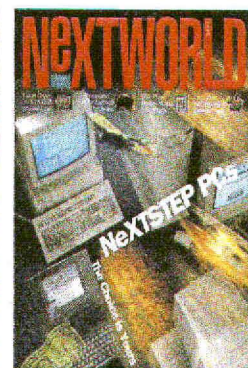
How NeXT Plays Favorites

SIMSON L. GARFINKEL

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B. Computer you use at work or at home (please check all that apply):

- ☐ 10) IBM or compatible
☐ 11) Macintosh
☐ 12) NeXT
☐ 13) Sun
☐ 14) Other Unix workstation

C. Publication you read regularly (please check all that apply):

- ☐ 15) Business Week
☐ 16) Byte
☐ 17) Communications Week
☐ 18) Computer Reseller News
☐ 19) Computerworld
☐ 20) Forbes
☐ 21) Fortune
☐ 22) Infoworld
☐ 23) LAN Times
☐ 24) MacUser
☐ 25) Macweek
☐ 26) Macworld
☐ 27) Open Systems Today
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NEXTWORLD

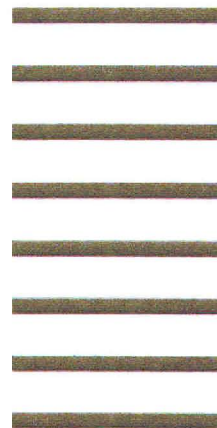
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NEXTWORLD

Now that NeXT has completed its transition to a software-only model, the question arises whether or not – and how – NeXT should compete in the applications market. Clearly, the trend is toward NeXT unbundling the application layer and selling it separately. And NEXTSTEP Developer is actually a collection of applications. NeXT has dithered for a while on selling other pieces, such as DBKit and Mail, as separate line items. I have not come to any conclusions yet, but these decisions should not be taken lightly.

The company, however, needs to be careful about competing with its own third-party developers, especially in the area of collaborative applications or groupware. On one hand, it is tempting to argue that NeXT should just concentrate on learning to do one thing well – selling development and user environments. It should only write applications that are bundled with NEXTSTEP, intrinsic to the NEXTSTEP environment, and unlikely to support third parties competing for the segment in the open marketplace.

Why? NeXT is a 200-person company and can only focus on doing a few things well. A small team in an external company can be more effective at accomplishing a task than NeXT engineers who are constantly distracted by getting the next release out the door. And the NeXT sales force has its hands full selling NEXTSTEP.

Let's look at one example: Mail. Originally an afterthought to NEXTSTEP 1.0, NeXT's innovative multimedia mail app turned out to be a central part of NEXTSTEP's story. Initially ahead of its time, it is now an aging dowager. The most bogus feature of NEXTSTEP 3.0 was Mail, sporting new icons but little else – not even bug fixes to its nasty addressing functions.

Other developers have wanted to do mail products, but the specter of

Mail II has quashed that impetus for years. NeXT has not gotten around to this product because the highly talented Bryan Yamamoto was working on InterfaceBuilder and related applications. The focus on this app could not be maintained against other pressures.

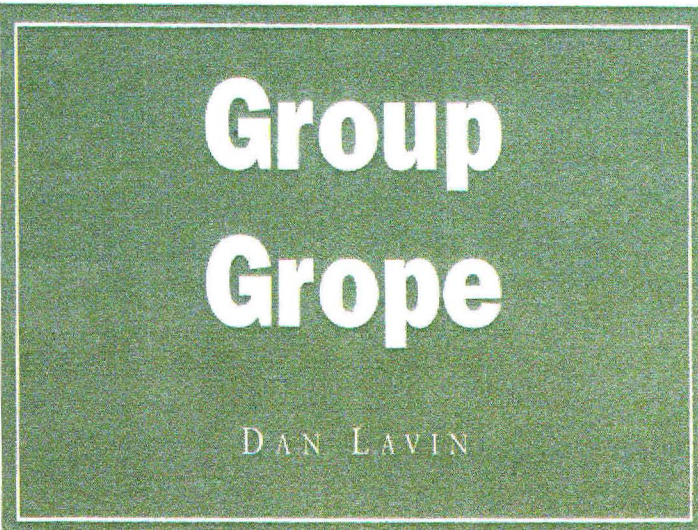
On the other hand, NeXT can certainly use the revenue from extra sales. Clearly, there is only so much money NeXT can make at \$500 a pop in net receipts for a copy of NEXTSTEP. Even a \$200 mail program would increase revenues by 40 percent. NeXT can rightly say to those developers who complain of unfair competition that no stone tablets have decreed the structure of computer companies and their relations to third parties. Clearly, the Mac market has not been crippled by the presence of Claris.

Besides, NeXT is obviously not going to be developing spreadsheets any time soon. It will focus on core technologies that support the NEXTSTEP message-of-the-moment. In addition, certain apps, such as InterfaceBuilder, are key to NeXT's message: It has too many person-years already invested in it and is too deeply tied to the environment. And I don't think a lot of folks are tussling for the turf occupied by configuration.app.

Today, several developers are finally ignoring NeXT and building their own Mail-type programs. If you were a customer, would you rather have several choices of mail programs or only the basic model direct from the manufacturer? Or is this more like getting a factory radio that you know is going to fit into the dashboard just right?

What I want is great products that support the NeXT market. Keeping an eye on what happens with Mail will show us the right direction. ♦

DAN LAVIN *comments on business issues in NeXT Ink.*



mix is an all-in-one telephone, data modem, fax machine and voice mail system using the built-in Digital Sound Processor* for faster processing. **mix** allows remote message controlling and remote programming. **mix** can store incoming calls with time and date stamps and forward messages digitally. **mix**'s easy-to-use, optional special objects shown below allow you to customize your voice mail system to create interactive dialogs with the caller without paying extra charge to your phone company for such services. With **mix**, you can use the microphone and speaker* of your NEXTSTEP computer to keep your hands free during phone calls.



mix also automatically switches incoming calls to telephone, fax or data modem all over one phone line. **mix** sends and receives faxes with PostScript™ quality at 9600 bps. Even when forwarding received faxes to another fax machine, there is no loss in resolution. **mix** transfers data at up to 2400 bps and supports the CCITT v.21, v.22, v.22bis and Bell 103/212A standards. **mix** also offers an integrated multimedia notebook for fast access to important data. Now shipping **mix** version 2.0 for NEXTSTEP for Intel and NeXT platforms. Discover **mix** now!

*Intel version requires optional DSP card and NEXTSTEP Sound Driver.
Faster data transmission speed will be provided via future software upgrade.

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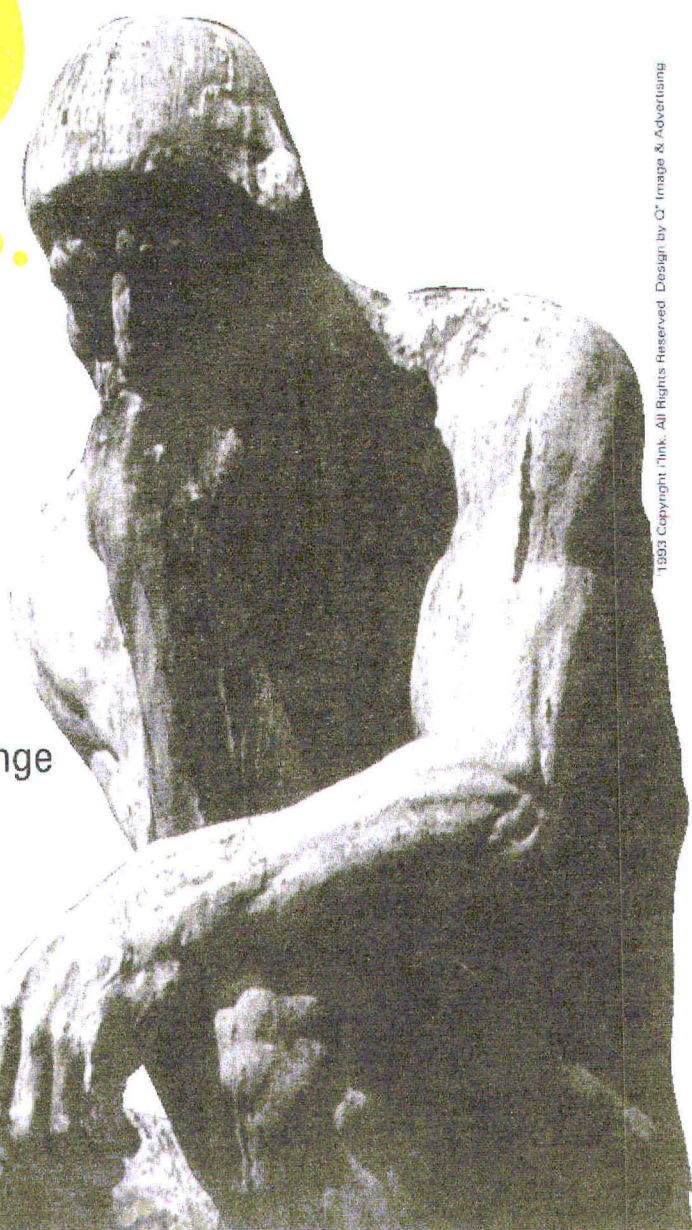
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Contact Sports

Two contact-management apps take it to the workspace

by SETH ROSS

While contact-management software has become popular on other platforms as a speedy electronic Rolodex, it's always remained a utility player. Under NEXTSTEP, though, the ability to work and communicate with other programs makes contact-management software a true power hitter.

After an initial shakeout, two programs have emerged with the right basic feature set to compete in this category: SBook from Sarrus Software and (Stay)InTouch from SmartSoft. We tested them head-to-head, dumping 7500 names into both SBook 3.1 and (Stay)InTouch 1.25 beta to see which could better handle the fire storm of phone numbers, fax numbers, mailing addresses, and e-mail addresses with which the typical knowledge worker has to contend. For most problems, SBook, the established product, provides better solutions, though upstart (Stay)InTouch is a serviceable substitute.

Two notes: Although SBook was created by former NeXTWORLD Senior Technology Editor Simson Garfinkel, it was sold last year to Sarrus. Garfinkel had no input on this review and will read it for the first time when this issue is published. And, as this issue went to press, SmartSoft changed the name of its product from InTouch to (Stay)InTouch to avoid possible confusion with a Macintosh product of the same name.

Contact clones?

SBook and (Stay)InTouch let you input or import lists of names, addresses, phone numbers, fax numbers, and e-mail addresses. They are both free-form entry managers. So, in addition to normal data, you can input other data like job titles, committee assignments, and so forth. Both support multiple open address books, allowing you, for example, to keep sepa-

rate personal and business books.

Both apps are "smart," employing pattern-recognition techniques to interpret your text as you input entries. Both insert mini-icons into your entries: an envelope for addresses, a telephone for phone numbers, a document or telephone icon for fax numbers, and an @ (at sign) for e-mail addresses.

Click the envelope icon, and a bar-coded envelope pops up, ready to print. Click the icon for a fax number, and a simple fax template appears, ready for a fax modem. Both can use a modem to dial the phone for you, a handy feature for those who make dozens of calls a day.

Once entries are in the programs, you can search for individual entries in both programs by just

(Stay)InTouch 1.25 (beta)



(Stay)InTouch is a competent contact manager that sends e-mail and faxes, dials the phone, organizes contacts into groups, and prints envelopes and labels. Some important features are missing, including the ability to sort entries alphabetically by last name.

\$125

SmartSoft, 2220 E. Limwood Avenue, Milwaukee, WI 53211, 414/964-8864, 800/424-8864, 414/964-4672 fax; smartsoft@parsec.mixcom.com.

typing in a few letters. Clever searching yields groups of contacts, such as all people who work at NEC or everyone with birthdays in November.

Both apps are extremely fast performers, an important factor when real-time communications are involved. Both apps produce matching entries as quickly as you can type. Both sport simple and uncluttered user interfaces, though SBook wins points for its streamlined expert mode. Using either app, you can dial a phone number or print an envelope from the Services menu

of any NEXTSTEP app. (Stay)InTouch can also insert either addresses or e-mail addresses.

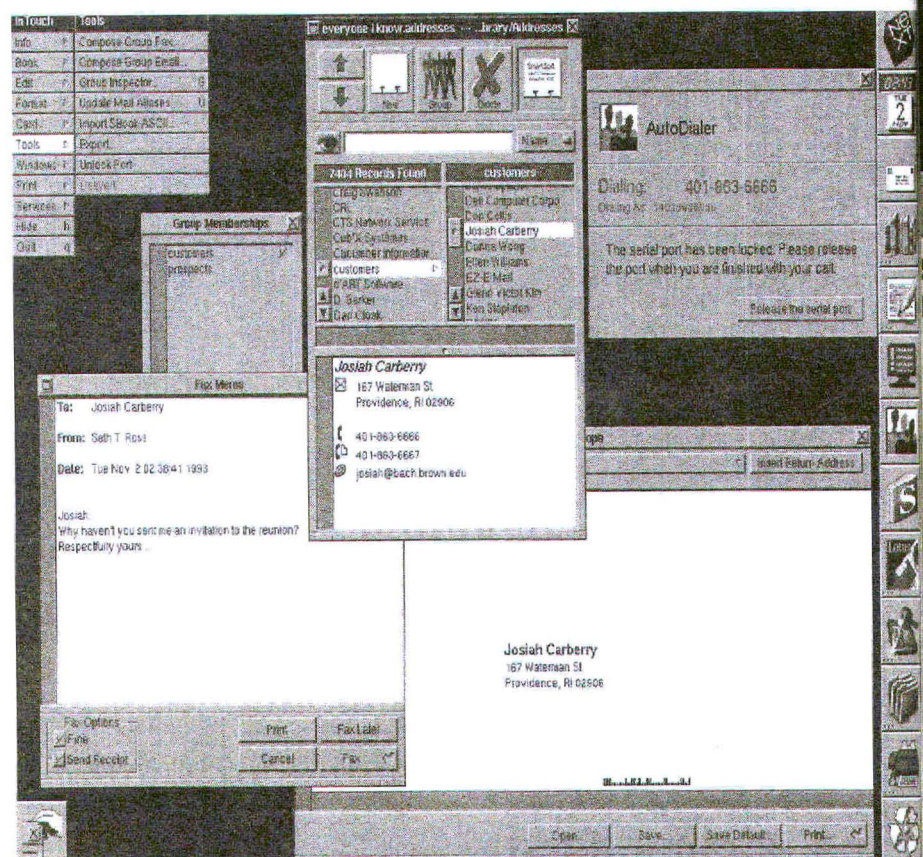
Devil in the details

The first thing many users will want to do is import an existing list of contacts. SBook imports QuickDeX, SpeedDeX, tab-delimited text, and merged text from PC applications. (Stay)InTouch imports only SBook-formatted ASCII text. While SBook sucked in a 6000-name mailing list, (Stay)InTouch choked. An annoying

one of dozens of formats. You can force either to recognize an address or phone number as such.

We made a few dozen phone calls using each of the apps' dialing features. Both allow you to set up various dialing rules. For example, both can automatically append a "1" to long-distance calls, or drop the area code for a local call. (Stay)InTouch, however, requires you to reset the serial port when you're done—a minor irritation.

Both apps competently print



(Stay)InTouch lets you quickly compose faxes, address envelopes, and make phone calls. It also allows you to group contacts. Note, for example, the "customers" category in top middle window.

twist: (Stay)InTouch automatically creates a new file out of imported entries, even if you want to add them to an existing file.

The pattern-recognition techniques of the two apps are remarkably similar. The general rule: If SBook can recognize an address or phone number, (Stay)InTouch can too, and vice versa. Both apps have some trouble with international phone numbers, which can appear in any

envelopes with postal bar codes and labels, including popular Avery formats, but SBook does a better job with labels. Each time you print labels, SBook allows you to choose the font for that particular print job. If the font size results in an address that's too long to fit on a label, SBook shrinks the text to fit. (Stay)InTouch, however, controls the font used on labels via a global preference set for all label-printing jobs. There's no way to change fonts on the fly.

SBook allows you to log all your activity. The phone-call log is particularly handy: You can time your call, take notes, and e-mail them to someone. Neither app, however, has the high-end contact-management features of a program like Who's Calling? from Adamation. SBook's ability to print out hard-copy address books will let you chuck your vulnerable-to-loss handwritten address book in the trash.

It's difficult to manipulate entries

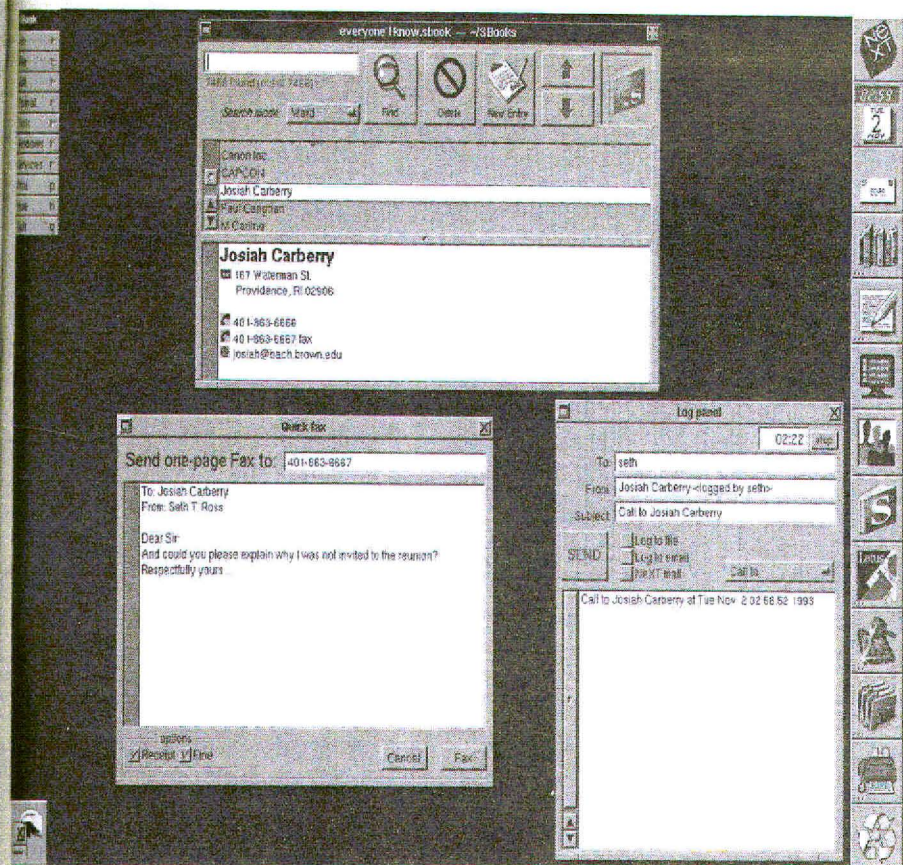
SBook 3.1



This fast and reliable contact manager can find the person you want to contact, send e-mail and faxes, dial the phone, keep a log of your phone notes, and print envelopes, labels, and address books. Recommended without reservation.

\$195

Sarrus Software, 777-C Woodside Rd. #101, Redwood City, CA 94051. 415/306-2495; info@sarrus.com.



SBook allows you to quickly retrieve contact info (top window), compose a "quick" fax (bottom left), make a phone call, and log a phone call (bottom right).

with either app. Although SBook lets you sort names alphabetically, it would be handy to be able to sort by date entered. (Stay)InTouch has no provision for sorting entries at all, not even alphabetically by last name.

(Stay)InTouch does, however, allow you to group your entries into categories such as friends, clients, vendors, and so forth. This feature simplifies, for example, a quick scan for customer records while answering a customer call. Or you could choose the prospects group as the target of your next direct-mail drop. In contrast, SBook doesn't let you group entries within a single SBook, and most users end up creating separate SBooks for different categories of contacts.

Neither app exports text suitable for a database app like Data-Phile. To update a DataPhile database with new (Stay)InTouch and SBook entries, we had to resort to manually cutting and pasting each entry. Control over the format and fields of exported text would be a time-saving addition to either app.

Positions, please

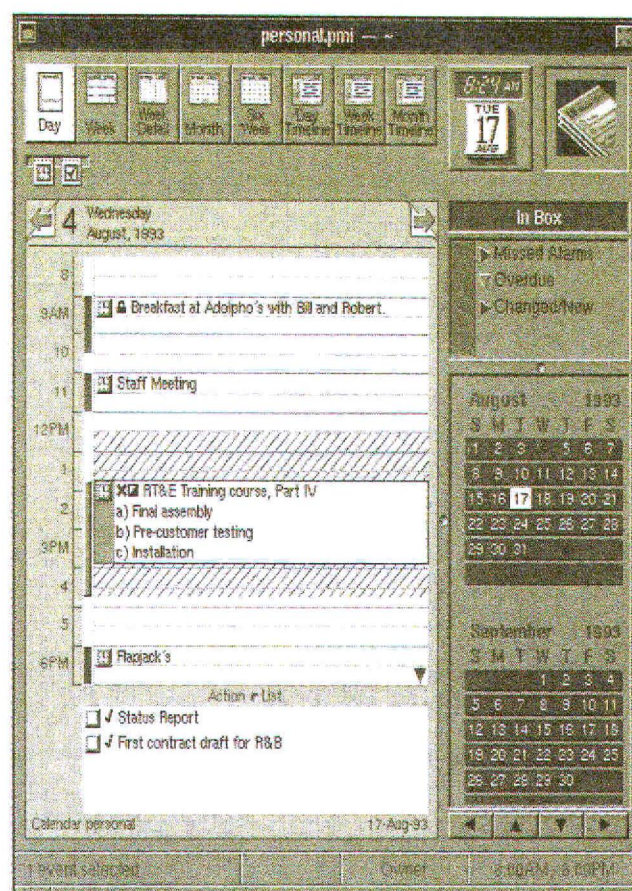
Sarrus Software has positioned SBook as a tool for large corporate customers. SBook can be integrated with Sarrus's Pencil Me In scheduling application (see "Computer Dating," *NeXTWORLD*, April/May 1993). Many corporate customers use the app to create and distribute corporate phone lists.

(Stay)InTouch is aimed squarely at the small-office or home-office user who needs to manage a variety of contacts. Despite playing catch-up with an established competitor, SmartSoft says it is committed to aggressively improving the app. The company sent us four revisions during the course of this review, each a bit more solid than its predecessor.

For now, we recommend the fast and reliable SBook without reservation for corporate customers and for those with heavy-duty contact-management needs. Users with less stringent contact-management demands should find (Stay)InTouch useful, assuming SmartSoft maintains its commitment to improvement. ♦

SETH ROSS is a *NeXTWORLD* contributing editor and a publisher of San Francisco-based *Albion Books*.

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Circle 73 on reader service card

Stereo Choices

Two new modelers let users choose between ease of use and power

by LEE SHERMAN

Because they both rely on Pixar's RenderMan software, intuitiv'3d from Intuitive Technologies and solidThinking MODELER from Gestel Italia are both capable of generating breathtaking photorealistic images. But both take radically different approaches to modeling 3-D worlds. The Intuitive Technologies entry sports one of the best interfaces we have ever seen, while Gestel added even more functionality to its product, and solidThinking MODELER remains the power choice for expert renderers.

Déjà vu

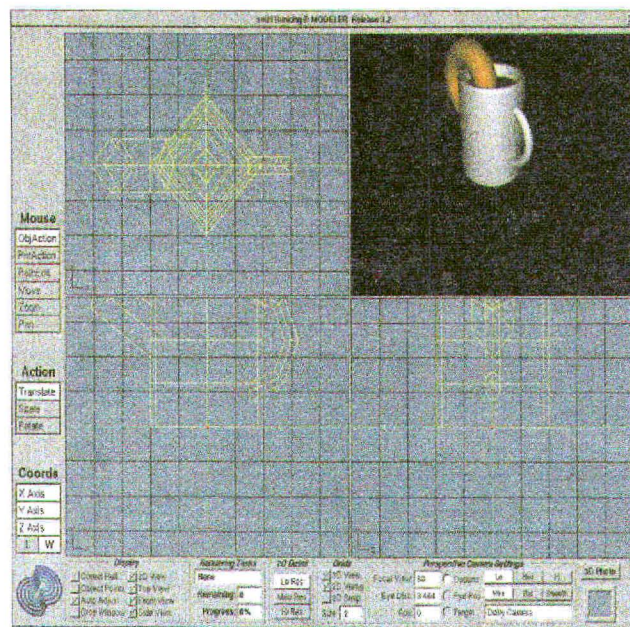
Proving the old adage wrong, Intuitive Technologies got it right in this first version of intuitiv'3d. The app seems instantly familiar because of its success in combining the best ideas seen in other programs into a smoothly accessible whole. The program takes good advantage of the NEXTSTEP user interface, providing inspectors, drag-and-drop palettes, and browsers for all of the elements that make up a 3-D world. It organizes shapes, shaders, lights, and even complex mathematical functions into a library window in which they are represented by icons that can be dragged and dropped into the main work area. In addition to the library, intuitiv'3d includes a Scrapbook window that can hold any combination of these items, including camera views, on a temporary basis.

The world browser presents the object hierarchy in a window that strongly resembles a File Viewer and works just as you would expect. You can use the browser to quickly navigate to any shape, select specific shapes for editing, and combine shapes into groups.

All of the primitives provided with the program remain fully editable, but if this isn't enough, you can create your own geometry from

scratch by using the lathing, sweeping, and lofting tools. Anyone who has used 2-D illustration packages like Virtuoso will feel at home drawing Bezier curves that can be extruded and revolved into new shapes. You can also import RIB files, which arrive with all of their geometry, lighting, and other attributes intact.

The direct-manipulation techniques employed by the program are greatly enhanced by its impressive response time—intuitiv'3d is fast enough to provide real-time smoothly shaded graphics.



solidThinking puts you at the center of your 3-D universe, displaying multiple views and control options in this single window.

In other programs of this type, it can be confusing to try to determine whether you are moving the camera or the objects located in three-dimensional space, but intuitiv'3d keeps things simple by providing separate views for these two purposes.

Unique to intuitiv'3d is the concept of metashaders. A metashader is a superset of a surface shader that includes additional parameters such as color, transparency, and lighting. Metashaders are defined by their ability to simulate not just metal, glass, or plastic, as with a regular shader, but a specific type of material, such as reflective metal, solid glass, or stippled plastic.

For the first version of a program, intuitiv'3d is remarkably com-



intuitiv'3d lives up to its name by providing an interface modeled on the workspace, with browsers, libraries, and inspectors.

plete, but Intuitive Technologies has still left room for expansion. Its modular environment can be extended by adding modules that connect it to programs such as Mathematica and ZZVolume. Like all good object-oriented software, it also includes an open API, which allows programmers to add new functions to the program.

For gurus only

You could not find a clearer counterpoint to intuitiv'3d's approach than solidThinking MODELER 1.2. Like FrameMaker, solidThinking concentrates more on providing almost god-like control than an interface that is usable by mere mortals. The interface, which has more in common with high-end software running on Silicon Graph-

ics workstations, will take some getting used to if you've used 3-D graphics software on a Mac, DOS,

solidThinking MODELER 1.2



This update to the powerful 3-D modeler adds Intel support, new features like motion blur, and the ability to import a wider variety of file formats, including Wavefront, DXF, and OpenCAD files. Still suffers from an awkward interface.

\$1400

Gestel Italia srl, Viale dell'Oreficeria 30/P, I-36100 Vicenza, Italy. 39/444/96.49.74, 39/444/96.49.84 fax; info@solid.gestel.it. In North America, Alembic Systems International, 14 Inverness Dr. E., Ste. G228, Englewood, CO 80112. 303/799-6223, 800/452-7608, 303/799-1435 fax; info@alembic.com.

or Windows machine. solidThinking delivers on the promise of its complexity, however, with exceptional power for the right user.

Within a single window, solidThinking displays the same four views as intuitiv'3d and includes a hierarchical browser—but that's where the similarities end. Most

unusual is its lack of drag-and-drop palettes for objects, shaders, and lighting, a feature seen in nearly every other NEXTSTEP 3-D program.

Version 1.2 brings solidThinking to NEXTSTEP for Intel and adds many advanced features to an already powerful program, including a motion-blur capability for simulating moving objects (a true animation capability is still missing). The

intuitiv'3d 1.0



The best interface yet on a NEXTSTEP 3-D program helps make the complex world of 3-D graphics accessible to low- and midrange users, while still providing plenty of power at the high end.

\$695

Intuitive Technologies, Immeuble Sedgwick, 7 Rue E. & A. Peugeot, 92563 Rueil Malmaison Cedex, France. 33/1/47.08.74.40; info@cubx.com. In North America, Alembic Systems International, 14 Inverness Dr. E., Ste. G228, Englewood, CO 80112. 303/799-6223, 800/452-7608, 303/799-1435 fax; info@alembic.com.

motion-blur effect is easy to generate. You first define an object's starting point, record its current position, then move it using the translate, scale, and rotate commands. When you render the image, you'll see the effect.

solidThinking is perhaps the most powerful modeler available for NEXTSTEP, but even intermediate users may find it daunting.

With these two entries, NEXTSTEP remains a preeminent platform for 3-D work. They don't really compete against each other, but both draw on the inherent power of the bundled RenderMan to serve different user bases. ♦

LEE SHERMAN is a contributing editor to NeXTWORLD.

First Tests With 3.2

FOR THE FIRST TIME, WE WERE ABLE TO RUN NEXTSTEP 3.2 ON THE MACHINES tested for Box Scores. Because 3.2 is covered elsewhere in this issue, we'll confine this discussion to hardware compatibility.

The 3.1 kernel included drivers for everything one might possibly need at boot time. This setup resulted in two problems: Every kernel was excessively large, containing unneeded drivers, and no provision existed for incorporating additional boot-time drivers as they became available. With 3.2, most of the drivers in the 3.1 kernel have been removed from the Intel version of the 3.2 kernel, and only those drivers that are needed during boot are loaded at that time.

We were given the opportunity early in the installation process to load drivers via floppy disk. This allows for unrestricted expansion of hardware support between releases of the OS and also keeps the kernel lean and fast.

With loadable boot-time drivers comes the new driver API, which is more complete and better documented than in 3.1. Drivers written for 3.1, however, will not work with 3.2. This limitation does not pose a problem, because all of the 3.1 drivers that NeXT released separately have equivalents in 3.2. But if someone attempted to install a 3.1 driver on a 3.2 system, the machine could be rendered unusable.

With the new driver API and the wide release of DriverKit, we will likely see many new drivers appearing on archive sites. Greater driver availability has many benefits, but we caution users to be wary. Writers of public-domain drivers may not be able to test them on a range of systems that is broad enough to ensure stability. The real benefit of the public API will be for manufacturers who need to write drivers for their hardware. ♦

by M CARLING

Box Score Developer

ALR Evolution IV 4E/66D

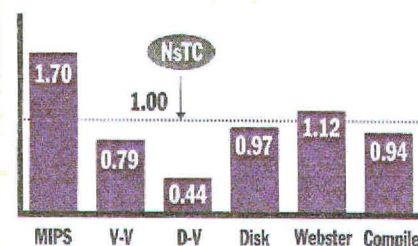


\$5838 (as configured)

Configuration:

DX2/66; 36MB RAM; 340MB SCSI drive; 1024-by-768, 16-bit ATI graphics; 6 EISA; 2 EISA/VLB slots; 17-inch color monitor.

NeXTWORLD benchmarks



Performance

Good performance in raw processing is slowed by a hard disk that was designed a few years ago.

Video

ATI graphics slow up this machine, but its video is crisp and stable. Color is better than average.

System design

This machine's strength. Lots of slots,

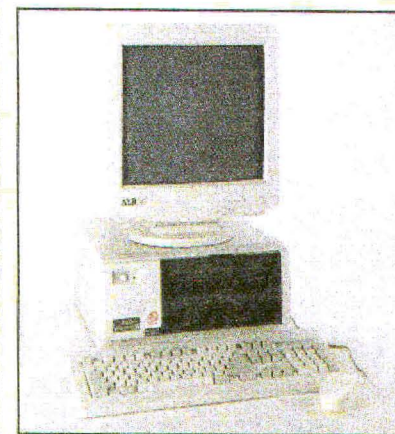
good form factor. A little noisier than average.

NEXTSTEP orientation

Selling into NeXT market, but software isn't preinstalled. Tech support is unfamiliar with NEXTSTEP.

Support

Excellent. Five-year warranty on ALR parts, 15 months on peripherals. 30-day money-back guarantee on direct sales. Toll-free support included.



Value

Competitive price for a well-built machine.

Contact

ALR, 9401 Jeronimo, Irvine, CA 92718. 714/581-6770, 800/444-1234.

Box Score Developer

GEC F86

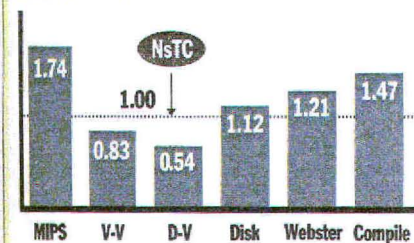


\$5745 (as configured)

Configuration

DX2/66; 32MB RAM; 1GB SCSI drive; 1120-by-832, 16-bit ATI graphics; 6 EISA; 2 EISA/VLB slots; 17-inch monitor.

NeXTWORLD benchmarks



Performance

Good performance, especially on the real-world developer benchmark. Held back by an average disk.

Video

Average graphics. Not very fast, and the colors are washed out. Adequate for general use, but a graphic artist would need a different monitor.

System design

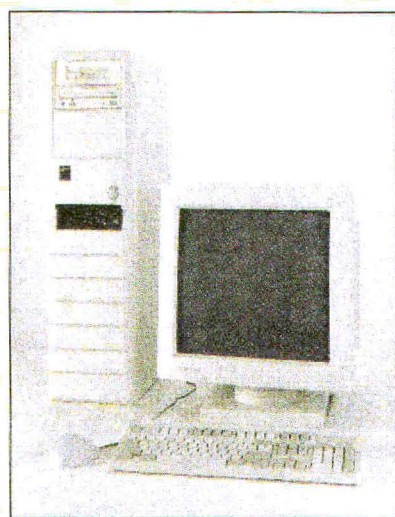
Rugged, but not put together as well as possible. Lots of design wins in expandability. Somewhat noisy.

NEXTSTEP orientation

NEXTSTEP is preinstalled. One tech-support person is very NEXTSTEP-savvy but only works part-time.

Support

One year parts, two years labor. Unlimited toll-free tech support. No money-back guarantee, but GEC guarantees NEXTSTEP will run as advertised.



Value

Low price for highly rated machine. Includes sound card and speakers as configured.

Contact

GEC, 1901 E. University #300, Mesa, AZ 85203. 602/834-1111, 800/486-1000.

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Circle 57 on reader service card

Fax Solution

NEXTSTEP has had built-in support for fax modems since Version 2.0, but it only supports two modems – Interfax and HSD's FaxMaster 96/24X – neither of which is now readily available. If you want to send and receive faxes in today's world, you'll need a third-party fax driver in addition to a fax modem. We recommend Black & White Software's NXFax, which earned a 1993 *NeXTWORLD* Best of Breed award for utility software in combination with ZyXEL 1496 fax modems.

NXFax supports a wide variety of fax modems (ZyXEL, Telebit, Supra, and others), automatically switches a modem between fax and data calls, and provides an innovative monitoring program that tells you exactly what your modem is doing. It even displays the phone number of the incoming fax machine and the page number of the fax that is cur-

rently being received or transmitted.

NXFax also supports Distinctive Ring, so you can share a single phone line with the fax modem and have it pick up only faxes, and Caller-ID, for those who want an extra measure of security.

Black & White sells NXFax alone or bundled with the ZyXEL U-1496E or U-1496 PLUS modems. We looked at the new versions of these modems and they were just as good as the machines to which we gave perfect ratings last year (see "Just the Fax," *NeXTWORLD*, Winter 1992). Both modems support a wide array of protocols, including V.22bis, V.32, V.32bis, and V.42. The fax component sends and receives at 9600 baud. The U-1496E, sporting some new microcode, has worked flawlessly over a three-month test period, though it took about 30 seconds to handshake with the five-year-old fax machine we called regularly. If you spend the extra money for ZyXEL's

U-1496 PLUS modem, you'll also get a little LCD screen on the modem that shows you the current data throughput in each direction. The U-1496 PLUS also contains a proprietary ZyXEL protocol that can communicate at up to 38K baud with another U-1496 PLUS. For our money, we'll take the cheaper U-1496E.

Besides working as a fax modem, NXFax interoperates seamlessly with all UNIX communications programs,

such as *tip*, *cu*, *kermit*, and *uucp*. A lockout feature keeps you from trying to use the data mode when your system is busy sending or receiving a fax, or vice versa.

The NXFax installer and monitor programs implement an innovative on-line help system that displays in a hint window a one-sentence explanation of the button or text field underneath the mouse cursor, similar to a variety of programs now running under Microsoft Windows.

Annoyingly, NXFax comes without a single page of printed documentation. Instead, all documentation is on line in the NeXT Help format within the NXFax Monitor program. NXFax is not the only NEXTSTEP program to follow this pattern, and we hate it. It can be a real pain for people (like me) who like to lie down in their hammock and read a program's documentation. ♦

by SIMSON L. GARFINKEL

NXFax 1.03b
ZyXEL U-1496 modems

Our favorite fax modem and fax-driver software. The ZyXEL modem is the best we've seen and the NXFax software works flawlessly with it. Both are highly recommended.

\$135 NXFax; \$470 NXFax, ZyXEL U-1496E modem, and cable; \$865 NXFax, ZyXEL U-1496 PLUS modem, and cable.

Black & White Software, Bridge Street Marketplace, Waitsfield, VT 05673. 802/496-8500, 802/496-5112 fax; nxfax@bandw.com.

NeXTriloquism

Taking control of a remote computer – screen, keyboard, mouse, and all – has long been possible in the PC and Macintosh world with software like Timbuktu and Carbon Copy Plus. Now this useful ability comes to NEXTSTEP with the release of ScreenCast, an excellent screen-sharing utility from Otherwise.

Using ScreenCast, you can replicate one computer's display on another computer on your network. As the sender's display changes, so does the receiver's, updating in real time. If you prefer, both keyboards can be active, and either the sender or the receiver can drive the session.

Sessions aren't limited to two machines. Only network bandwidth imposes a practical limit; with more than 20 computers in a session, updating becomes unacceptably slow.

ScreenCast was originally designed for use in the classroom. With it, students can follow along with an instructor on their own machines, instead of squinting at an inevitably out-of-focus screen projector. Despite its suitability for the classroom, more people are going to buy ScreenCast for its two-machine applications.

ScreenCast is a godsend for tech-support providers. When users call

with a problem, a technician can look at their display in real time, see what they're doing, and show them how to resolve it on the spot. System administrators can do more tasks remotely, which is convenient when the network spans several buildings and essential when it spans several countries. As a "shared whiteboard," ScreenCast lets users collaborate on a document in any NEXTSTEP application.

In our tests, ScreenCast performed as advertised. We found no problems, and Otherwise claims it does not even plan another release because its users have found no bugs and have no suggestions for improvement! It was very easy to install and run, and the on-line documentation covers everything you need to know to use it effectively.

It's important to read and understand all of the documentation before you get started. Improperly used, ScreenCast can be a real hazard to your network security. Adequate safeguards are provided, but like dead

bolts and passwords, they only work if they're used. You may also want to think about a usage policy, because ScreenCast is capable of generating enough network traffic to clog the system, especially if used over a wide-area net.

According to the documentation, some applications that use unusual techniques to speed up display performance, like Mathematica and some X Window packages, may not be replicated by ScreenCast. If you have a key application that you're unsure about, try it before you buy ScreenCast. You may be pleasantly surprised; we didn't expect ScreenCast to work well with VirtSpace, but it did.

ScreenCast 1.03 supports both Intel and Motorola architectures, and requires NEXTSTEP 3.0 or later. ♦

by ROB WILEN

ScreenCast 1.03

An excellent implementation of a remote controller for NEXTSTEP machines. A godsend for education, technical support, and remote conferencing.

\$140 for a single-user fixed license; \$160 per user for a floating-network license.

Otherwise, 1501 Lowe Ave., Bellingham, WA 98226. 206/647-9436, 206/738-6017 fax; screencast@otherwise.com.

QuickStart 2.0

Microsoft Mouse

Reviews



WHY WOULD A PERFECTLY SANE AND PROFITABLE COMPANY TAKE A RISK WITH OBJECT-ORIENTED NEXTSTEP?

kermit, and uuwp. A keeps you from trying to send or receive data mode when your sending or receiving data.

x installer and monitor an innovative system that displays a one-sentence explanation button or text field mouse cursor, similar to programs now running on Microsoft Windows. NXFax comes with a set of printed documentation. NeXT Help format is a Fax Monitor program. The only NEXTSTEP program that shows this pattern, and it can be a real pain for those who like to lie down and read a presentation. ♦

.. GARFINKEL

ords, they only work if you may also want a usage policy, because it is capable of generating network traffic to, especially if used on a net.

the documentation, is that use unusual speed up display performance. Mathematica and other packages, may not run on ScreenCast. If you indicate that you're using it before you buy, it may be pleasantly surprising. ScreenCast doesn't expect ScreenCast with VirtSpace,

1.03 supports both 68k architectures, and IEP 3.0 or later. ♦

IN

To CERTAIN COMPANIES, choosing an object-oriented system years before it's available from the industry giants seems like a risk.

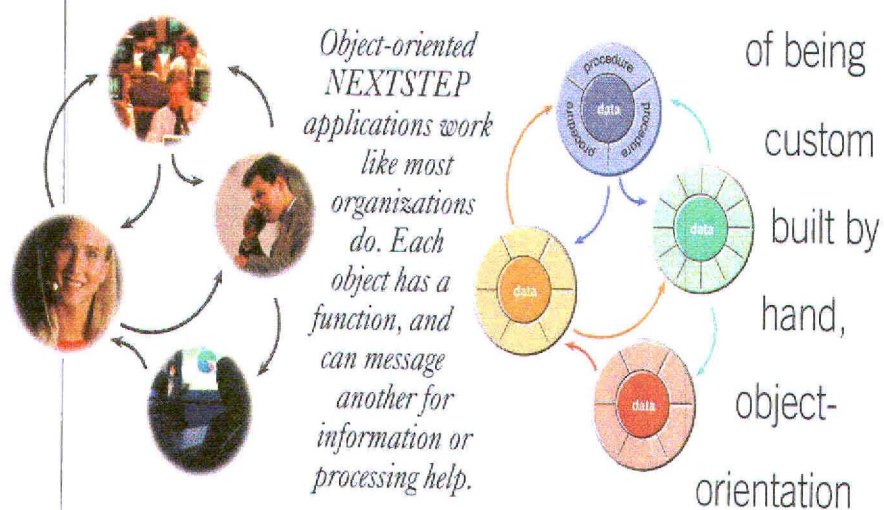
To others, though, passing up a compelling competitive advantage presents a far more dangerous risk.

So they use NEXTSTEP™ for Intel®

Processors—the first and only *NEXTSTEP conserves your most valuable resource.* reusing or modifying objects operating system and development environment you know to be tried and true. optimized for objects from top to bottom.

It's really the software equivalent of the Industrial Revolution.

Just as modern factories allowed products to be built from prefabricated component parts instead



lets developers build complex applications by using prebuilt software components. The result—mission-critical custom applications that can be developed up to ten times faster.

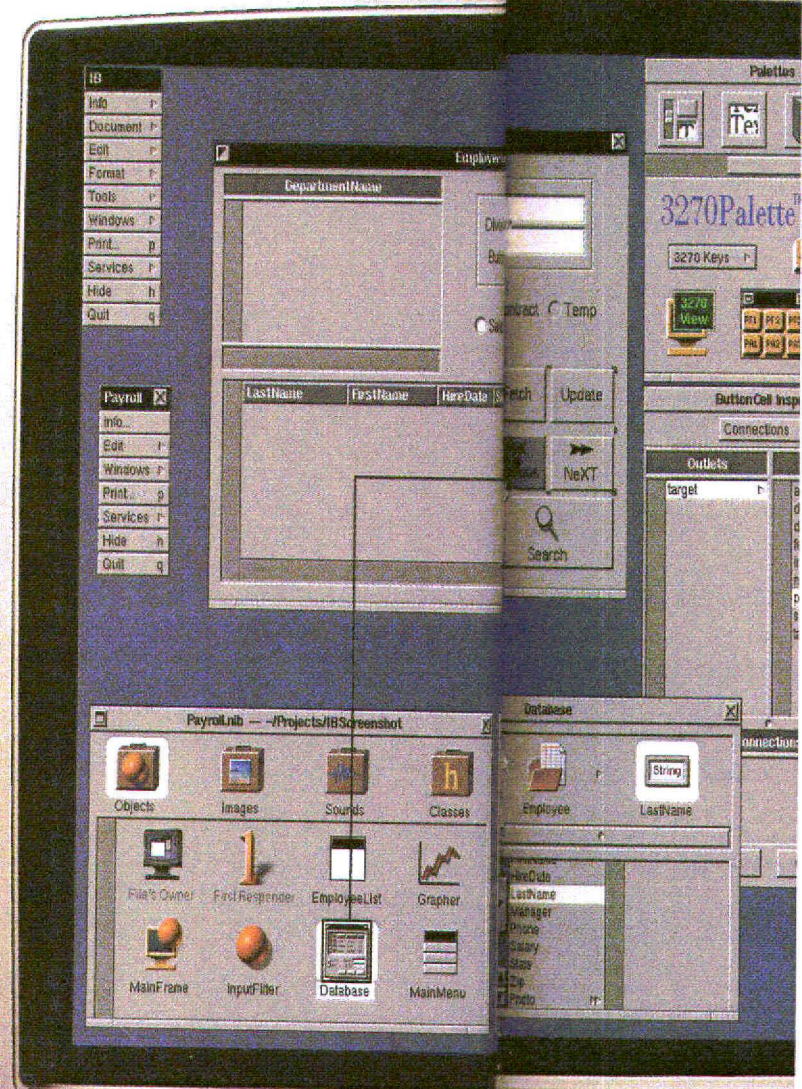
Every NEXTSTEP application is comprised of independent and easily accessible objects that encapsulate both the code and data for individual

program functions. So there's no danger of breaking an application when all you want to do is update a single function. This structure allows you to evolve your custom applications to quickly exploit new business opportunities, since it lets you leverage past efforts by reusing or modifying objects you know to be tried and true.

Even before you start to build a custom

application in NEXTSTEP, it's already finished. It's a library of objects of the functionality of most programs: text editing, printing, graphics, color selection. Our Interface is more than mere presentation; it's an ordinary "screen" for complex enterprise

THE OBJECT IS FASTER



QuickStart 2.0

Microsoft Mouse

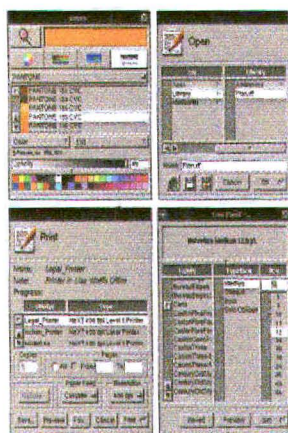
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evolve your custom
o quickly exploit new
ortunities, since it
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odifying objects

ild a custom

application in NEXTSTEP, much of your work is
already finished. Because NEXTSTEP comes with
a library of objects representing over 80%
of the functionality that is common to
most programs — including objects for
text editing, printing, faxing, sound, 3D
graphics, color selection and more.

Our Interface Builder™ gives you much
more than mere prototyping tools. Unlike
an ordinary "screen painter," it lets you construct
complex enterprise applications graphically,



*NEXTSTEP provides a
full set of objects for features
common to most programs,
from printing to faxing.*

manipulating real objects and not just images. You
can even add new objects which are automatically

recognized by the system. NEXTSTEP
also comes with object kits such as the
Database Kit™, which lets you assemble
data-intensive applications without
worrying about how your database is
structured. Simply connect your custom
application to an "adapter" object (Oracle
and Sybase adapters are included) and it just works.

NEXTSTEP, however, is only the tip of the object

iceberg. Because it
offers so many rich
opportunities for new,

more sophisticated software, it's already spawned
an entirely new industry: ObjectWare™.

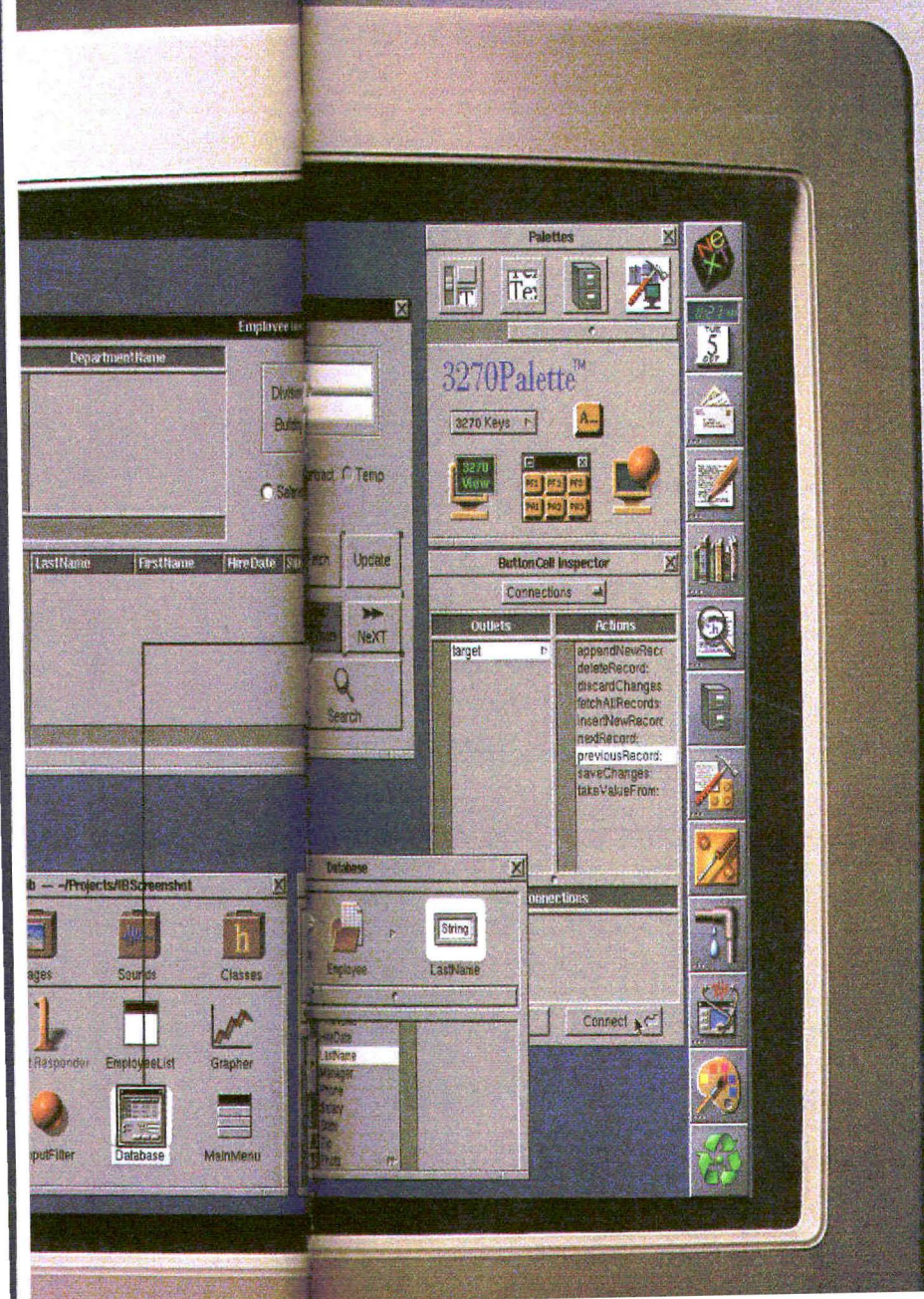
There are now over 1,400 NEXTSTEP objects
available from more than a hundred object vendors.
So when you write NEXTSTEP applications, you
have fast access to pre-written, rock-solid objects
for an exciting world of advanced functions, from
text-to-speech to data feed and bar codes.

Of course, faster and better ways to develop
don't mean much unless
you can distribute your
applications through-
out your company.

CC++
OBJECTIVE

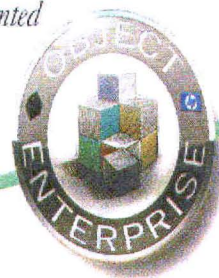
*We provide objects and tools for building
advanced client/server applications, and
support for Objective C, C++ and ANSI C.*

So stay with us for just a few pages more. We
promise to make this fast.



To BUILD A CUSTOM CLIENT/SERVER SYSTEM, you would normally pick an operating system and then go scavenging for the development tools to make it work. NEXTSTEP offers a new approach. In one shrinkwrapped box, you get one unified environment, including operating system, development

Object•Enterprise combines NEXTSTEP with Hewlett-Packard's 9000 product family, allowing you to develop and deploy custom object-oriented client/server applications across the entire enterprise, from desktop to data center.



tools, integrated applications, database access, full networking and more. It's everything you need to build advanced client/server systems.

NEXTSTEP lets you deploy the benefits of object technology throughout your organization, it doesn't make you sacrifice even one of your standards.

Built upon a solid, robust foundation of UNIX,

NEXTSTEP integrates the desktop completely, allowing X, Windows, MS-DOS, IBM

Because the system is common to all applications, the interface remains simple from application to application. The software integrates perfectly with the NEXTSTEP product line, including all the popular DOS

including full cut-and-paste, So user acceptance is high, and costly user training is not needed. NEXTSTEP not only

3270 and AS/400 applications to co-exist, sharing data and services with NEXTSTEP applications. That way your legacy apps maintain their value and all your Windows,

including full cut-and-paste, So user acceptance is high, and costly user training is not needed. NEXTSTEP not only

THE OBJECT IS SEAMLESS

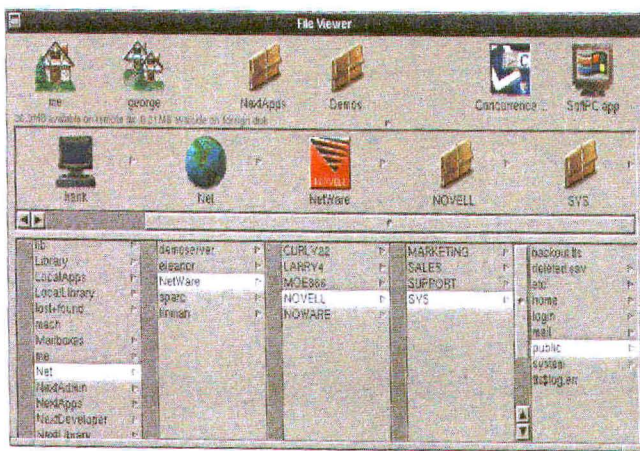
About the only thing it doesn't come with is risk: While it raises development

networking and file standards remain intact.

NEXTSTEP Release 3.2 even comes complete with SoftPC from Insignia*, which contains the code Microsoft® uses to emulate Windows applications on Windows NT. So, powered by a 486 or Pentium

computing environment, sophisticated bundles of even greater productivity. NeXTmail™ is built into the system, giving all connected users

standards by an order of magnitude, NEXTSTEP runs on standard Intel 486 and Pentium® machines from such leading names as Dell, Compaq, NEC, Hewlett-Packard, Digital, NCR and Epson. (It's available pre-loaded on many models.) And even though



In the graphical world of NEXTSTEP, a user can access information across standard networks without having to worry about the complexities of getting there.

apps at near-native speed.

NEXTSTEP also gives you full support for TCP/IP, NFS, GOSIP, POSIX and Novell networking standards, with Macintosh® and MS-DOS file system compatibility.

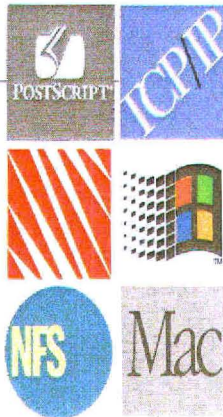
compatible with UNIX dictionary and thesaurus consulted at any time application. And special is a system object that

Its greatest power, though, is the power it delivers to your company's users.

summoned by any application. NEXTSTEP object

QuickStart 2.0

Microsoft Mouse



NEXTSTEP supports just about every standard in the civilized world.

kermit, and uuwp. A
e keeps you from trv-

benefits of object
ganization, it doesn't
your standards.
oundation of UNIX®
EP integrates the
completely, allowing
ws, MS-DOS, IBM
O applications to
a and services with
vay your legacy
all your Windows,

Because the system provides a set of objects
common to all applications, the graphical
interface remains simple and consistent from
application to application. Your custom soft-
ware integrates perfectly with shrinkwrapped
NEXTSTEP productivity applications, as well as with
all the popular DOS and Windows applications —
including full cut-and-paste capabilities.

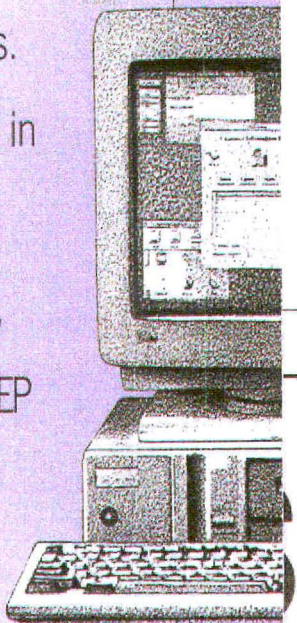
So user acceptance goes up, and the need for
costly user training goes down.
NEXTSTEP not only offers the most advanced

between applications, between users,
even across networks. By tapping the
power of PDO (Portable Distributed
Objects), you can actually develop
objects on a NEXTSTEP client and
deploy them in completely different systems, so
servers can utilize the same power.

And while NEXTSTEP can deliver all of the
advances of a revolutionary technology, it can also
offer the day-to-day dependability of a tried-and-
true system. Because that's exactly what it is.

IS SEAMLESS DEPLOYMENT.

Already in
its third
release,
NEXTSTEP

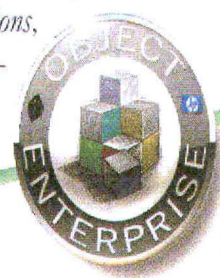


remain intact.
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dows applications
a 486 or Pentium
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P also gives you full
P/IP, NFS, GOSIP,
vell networking
h Macintosh® and
ystem compatibility
t power, though, is
pany's users.

computing environment, it comes complete with
sophisticated bundled applications that can bring
even greater productivity to the organization.

NeXTmail™ is built
into the system, giving
all connected users
access to drag-and-drop multimedia mail (it's fully

*Objects are a far bigger idea than any one computer.
PDO can send messages across applications,
across offices or across a whole planet —
so information can stay up to date
across the entire enterprise.*



is polished, perfected and proven in the
most demanding companies all around
the world. (A comparable system from the giants of
the industry—or anyone else—remains
at least two to three years away.)

So now you've seen how NEXTSTEP
brings dramatic gains to both development
and deployment. At least you've seen it in theory.

compatible with UNIX mail). The complete Websters®
dictionary and thesaurus can be
consulted at any time, from any
application. And spell-checking
is a system object that can be
summoned by any application that requests it.

NEXTSTEP objects, in fact, can send messages

*NEXTSTEP for Intel Processors runs on industry-standard 486- and Pentium-based machines from the
world's leading computer makers. It's even available pre-loaded on many models. Just ask.*



If you can stay with us for one more page, we'd be
delighted to show you how it works in real life.

A GROWING NUMBER OF COMPANIES have seen the gains to be made with a complete object-oriented system of software. Rather than buy a vaporous promise for the future, they've chosen real objects now: with NEXTSTEP. And practically overnight, they've begun to reap the benefits.



Even the press is impressed. NEXTSTEP has been universally praised as the only real object system.

At McCaw Cellular, NEXTSTEP was employed to develop a new customer service system that manages all interaction with McCaw customers, distributors and dealers — a system that will ultimately be deployed to about 4,000 users.

With less code required, they estimate their first application was completed in about one-third the time it would have taken using OSF MOTIF or Windows. And as they build a library of airtight objects, they expect future applications to take even less time.

At Swiss Bank Corporation, one of the world's leading options trading companies, NEXTSTEP has helped build a product line of consistent and easily maintained financial services applications. The sheer speed of NEXTSTEP development allows them to enter new markets with innovative financial products — and stay well ahead of the competition.

Chrysler Financial evaluated tools like Windows and PowerBuilder™, but they chose NEXTSTEP. They found that there was nothing comparable for application development or database interface. Plus, NEXTSTEP lets their users run custom and shrinkwrapped apps in one consistent way.

For them, the retail portion of their business is mission-

THE OBJECT IS THE ANSWER

NEXTSTEP is probably the most respected piece of software on the planet. —Byte Magazine, August 1993

LA COUNTY SHERIFFS DEPT

ABBOTT LABORATORIES

WILTECH

PANCANADIAN

WILLIAM MERRIS AG

MOORE CELLULOSE

BJK&C

CA

SKY

KLATER

FIRST NATIONAL BANK OF

SWISS BANK CORPORATION

CHRYSLER FINANCIAL

Users say it sizzles on 486 machines and is the best OOP Platform. —Computerworld, June 1993

NEXTSTEP is more complete than any other VARS and it is easier to develop applications for NEXTSTEP for NT. —Byte Magazine, August 1993

a platform for building applications that brings more to the other operating systems

he claim is that

QuickStart 2.0

Microsoft Mouse

Reviews Desk

, kermit, and uuap. A
e keeps you from trv-

probably the most
of software on the
August 1993

NTY SHEETS DEPA
LABORARIE
WILTEL
NADIAN
OLEUM LTD.

a platform for building and dis-
tributing applications, NEXTSTEP
brings more to the party than any
other operating system. —Network Computing

IT IS THE ADVANTAGE.

LIAM MORIS AGENCY
CELLULAR
BJK&E, INC.
CANTEL
SKYWAY
KLATERS & PAINE
TIONALNK OF CHICAGO
BANK CORPORATION
R FINANCIAL

sizzles on
s and is the
form.
P is more complete
ablished by users and
and it is easier to develop
ions for NEXTSTEP
—Byte Magazine, August 1993

he claimed it was years
ahead of its time. He was
—Fortune Magazine, June 1993

critical. So they're using NEXTSTEP to create a system for processing automobile loans and leases at 100 financial centers across North America. By first creating generic business & financial objects, they expect to streamline future projects by sub-classing them into other objects—all of which can easily be updated across the organization.

PanCanadian Petroleum Limited was 90% down the road to standardizing on Windows with PowerBuilder in creating their client/server development environment when they discovered NEXTSTEP and made the switch.

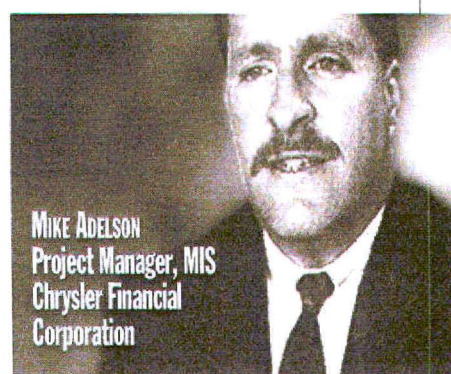
Within two months, they were actually farther along in

their project, thanks to the object-oriented power of NEXTSTEP.

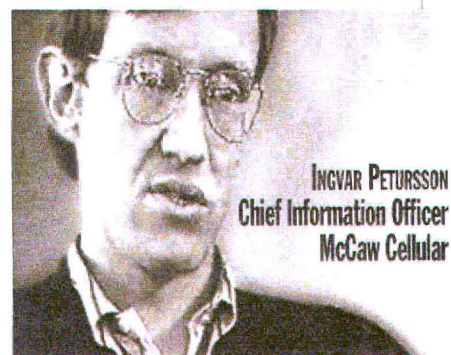
Now they believe they have

gained a two-to three-year lead over competitors who have decided to wait for object technology from other sources. And they're using NEXTSTEP to deploy applications to 1,000 users, delivering the necessary information to every professional practice in their business of oil and gas exploration.

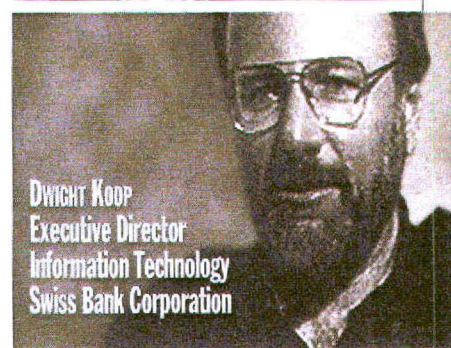
As you can see, NEXTSTEP object-oriented software is now paying dividends in companies from completely different industries. Which proves that in the world of business, there is one thing that every company can use: a competitive advantage.



MIKE ADELSON
Project Manager, MIS
Chrysler Financial
Corporation



INGVAR PETURSSON
Chief Information Officer
McCaw Cellular



DWIGHT KOOP
Executive Director
Information Technology
Swiss Bank Corporation

We've shown you how object-oriented NEXTSTEP is helping successful companies develop and deploy custom applications faster and better.

Now we'd like to give you the details, to give you a clearer picture of how NEXTSTEP can help streamline the most important company in the world: yours.

Just call us at 1-800-TRY-NeXT. We'll promptly send you system hardware requirement sheets, white papers, technical evaluations and complete specifications for

GET A COMPLETELY OBJECTIVE POINT OF VIEW.

both the NEXTSTEP user and developer environments.

We can also give you information about upcoming NEXTSTEP seminars scheduled for your area.

You'll gain valuable new insight on how to build a unique competitive advantage. And that, no doubt, is the most important object of all.

NEXTSTEP DEVELOPER CONFERENCE

January 24-26, 1994 — Washington D.C.

To register for the NEXTSTEP East Coast Developer Conference, call now.

1-800-TRY-NeXT



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*30 day license to SoftPC from Insignia. Upgrade to full license via phone. AWBJF00



\$79

Aurora Software, 16 N. Alle
WI 53705. 608/231-3679,
608/231-1183 fax; info@as.

At a time when smaller
proliferating in the N
community, this much
lease of QuickStart, a
sion app, is particular
QuickStart provides a
to-use window in wh
organize specific apps, f
ers into different sectio
launch or open them v
ing through a File Vie
panded feature set pro
refinement and usabilit
competitors like Metr
LaunchPad, though Eng
the pinnacle of Dock-e
because of its original
rior usability. QuickSt
features include mass
selected items at start-u
control over the displa
QuickStart window an
icons. Although a few
the interface are unnec
users who need to con
real estate will find Qu
itive and useful. We a
rating from three cubes
a-half. **PC**

The Electronic App Third Edition CD-ROM



\$48 for a one-year subscrip
Paget Press, 2125 Western
Seattle, WA 98121. 206/448
eaw@paget.com.

The third installment
tronic App Wrapper b
improvements to its mu
pendium of NEXTST
and services while contin
a sense of the commu
Intel users will benefit
complete listing of Inte
ucts anywhere. The n
lists products by categ
easier to zero in the ex
want among the hundre
seems to have eliminate
tlenecks, speeding bro
though this area could
provement. **LS**

QuickStart 2.0



\$79

Aurora Software, 16 N. Allen St., Madison, WI 53705. 608/231-3679, 800/578-4809, 608/231-1183 fax; info@as.com.

At a time when smaller monitors are proliferating in the NEXTSTEP community, this much-improved release of QuickStart, a Dock-extension app, is particularly opportune. QuickStart provides a small, easy-to-use window in which users can organize specific apps, files, and folders into different sections and then launch or open them without sorting through a File Viewer. An expanded feature set provides greater refinement and usability, outshining competitors like MetroTools and LaunchPad, though Engage! remains the pinnacle of Dock-extension apps because of its originality and superior usability. QuickStart's other features include mass launching of selected items at start-up and broad control over the display of both the QuickStart window and application icons. Although a few elements of the interface are unnecessarily quirky, users who need to conserve screen real estate will find QuickStart intuitive and useful. We are raising its rating from three cubes to three-and-a-half. **PC**

The Electronic AppWrapper, Third Edition CD-ROM



\$48 for a one-year subscription

Paget Press, 2125 Western Ave. #300, Seattle, WA 98121. 206/448-0845; eaw@paget.com.

The third installment of the *Electronic AppWrapper* brings several improvements to its multimedia compendium of NEXTSTEP products and services while continuing to reflect a sense of the community behind it. Intel users will benefit from the most complete listing of Intel-ready products anywhere. The new overmap lists products by category, making it easier to zero in the exact item you want among the hundreds listed. Paget seems to have eliminated several bottlenecks, speeding browsing up a bit, though this area could still use improvement. **LS**

Reviews Desk

Safety first, NEXTSTEP users! Moving over to the Intel universe, we are finding wide variations in mice, keyboards, and monitors. Poorly designed data-entry devices can result in repetitive-stress injuries, and flickering, fuzzy monitors can cause severe eye strain. Even after you buy a machine you can upgrade it in the aftermarket. We'll periodically look at some of these items, beginning here with the excellent ergonomic Microsoft mouse. — DAN LAVIN

This month's gang includes PAUL CURTHOYS (PC), RICK REYNOLDS (RR), LEE SHERMAN (LS), and myself, DAN LAVIN (DL).

Hollywood Edge CD-ROM



\$450

Tonal Images, 410 W. 23rd St. #2H, New York, NY 10011. 212/691-7933.

With the *Hollywood Edge* sound-effects library, you can draw on the exact same studio effects, cartoon-sound effects, and musical samples used by professional film, television, and radio producers, though you can use the sounds without incurring any royalty charges. The sounds are professionally recorded and lack the distortion and dropouts that often mar public-domain material. Pre-produced combination sounds provide a head start in creating stingers. Unfortunately, the care taken in producing the sounds wasn't extended to the preparation of the disk itself. Navigation is only offered through a File Viewer, and documentation is nonexistent, leaving you on your own. **LS**

Laser TechFonts



\$139

Nisus Software, 107 S. Cedros Ave., Solana Beach, CA 92075. 619/481-1477; nisus@weber.ucsd.edu.

Laser TechFonts is a collection of 20 typefaces specifically designed for engineering and scientific use. The entire set of fonts is composed of specialized characters for word-processing tasks like setting mathematical equations, inserting scientific values, creating fractions, and devising schematics for digital or analog circuits. The characters are high qual-

ity and come in a multiple-architecture NEXTSTEP version, as well as PostScript and TrueType versions for the Macintosh. If you frequently use scientific notation, engineering illustrations, or mathematical equations and find that you don't have all the characters you need, this package is exactly what you have been missing. **RR**

Microsoft Mouse



\$109

Microsoft Corporation, 1 Microsoft Way, Redmond, WA 98052. 206/882-8080, 800/426-9400.

One of the benefits of the move to Intel is leaving behind NeXT's hideous original mouse. Even the round Apple Desktop Bus mouse was an acquired taste. Over on the PC side, mice have been evolving for years. NeXT-WORLD sees a lot of mice on a lot of demo machines, and our favorite so far is the new one from Microsoft. Sculpted to fit your hand, it is ergonomic without being self-consciously so. Liberated from Microsoft Windows by NEXTSTEP mouse drivers, it moves smoothly and tracks like a figure skater. Lefties beware, though: This beauty is only for right-handed mousing. **DL**

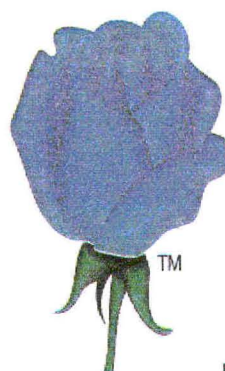
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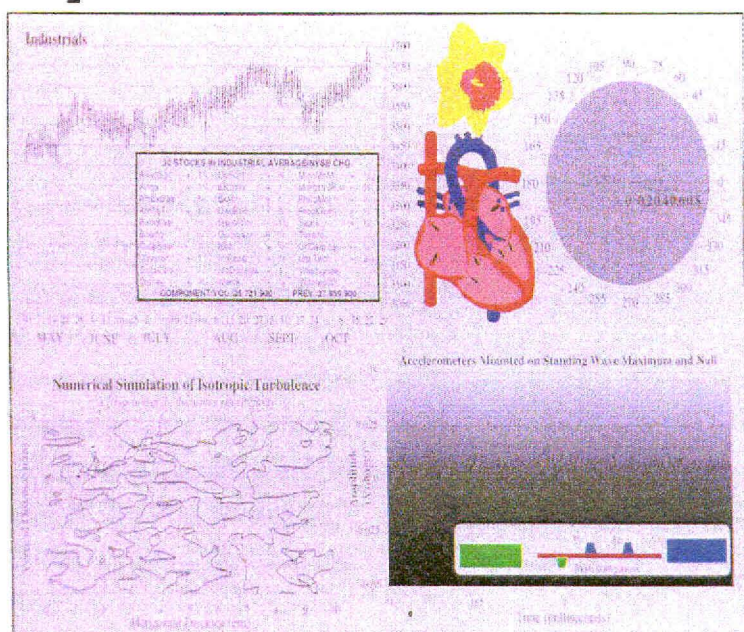
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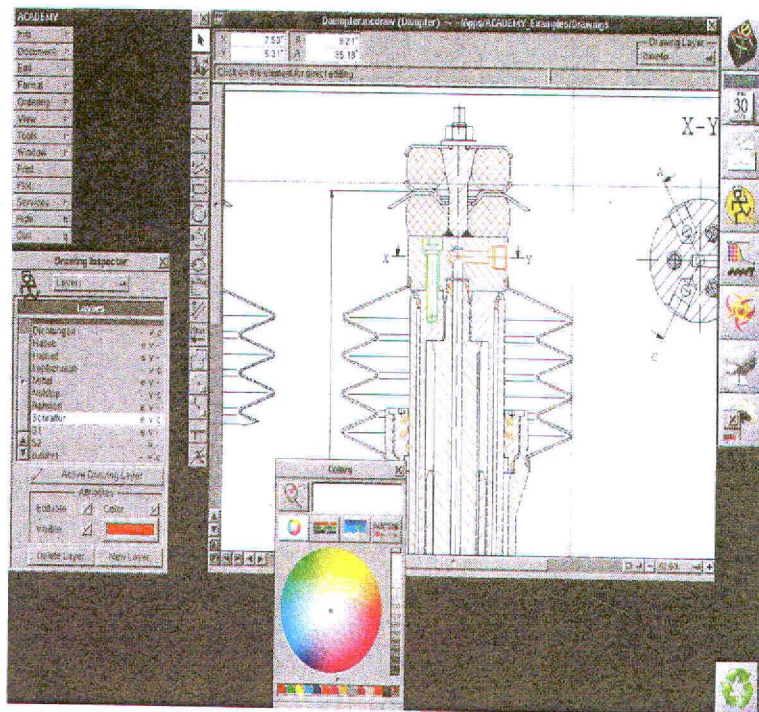
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ACADEMY-CAD on NEXTSTEP!

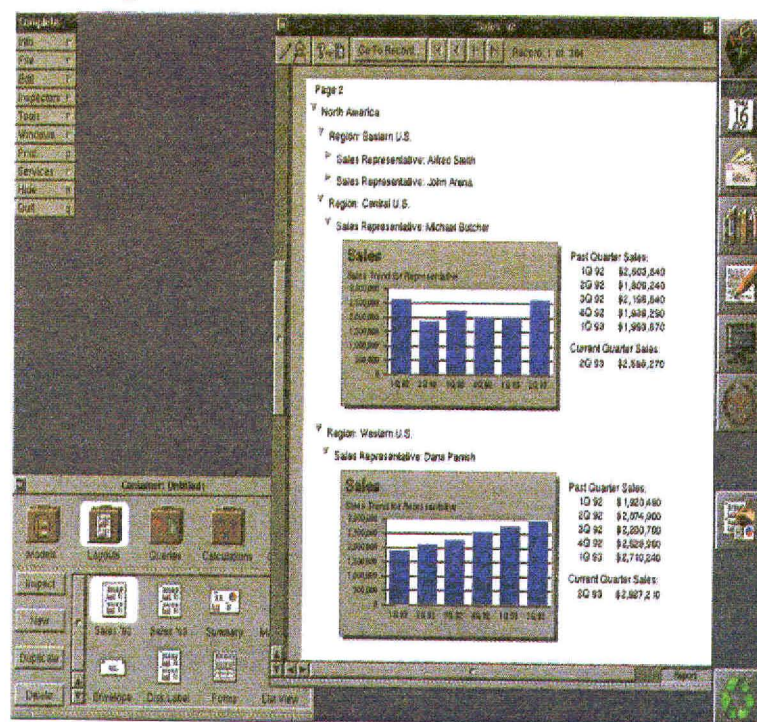


ACADEMY™ is a 2D CAD program which through its open and flexible structure, extends across many business fields, from mechanical and electrical engineering to architecture. The graphics engine, already in use on other hardware platforms, was combined with NEXTSTEP to make ACADEMY™ powerful, yet easy and logical to use. You won't find cryptic commands, endless parameter lists and time wasting dialogs or complex menu structures. However, the well designed usage concept still allows for precise numerical inputs, calculation of geometry and construction data as well as exact placement. Promotional price = \$1195.00

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Complete Access

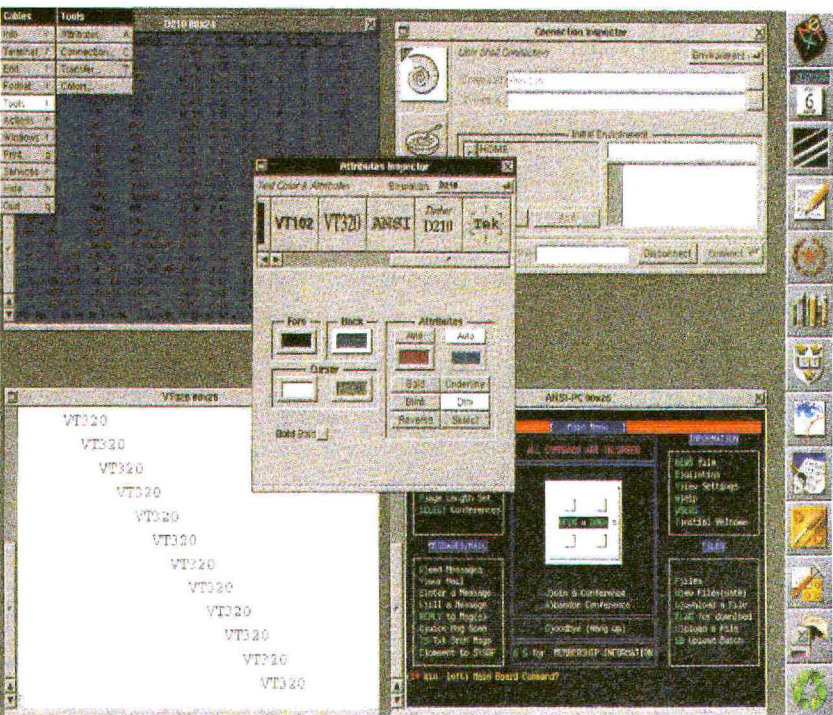


Complete Access is the first object-oriented report writing application. Features include an intuitive graphical query builder which lets anyone create ad hoc queries without learning SQL, charting, and optional outlining. Approximately 100 functions permit you to perform almost any type of calculation on your data. Use Complete Access to create not only your reports, but mail labels, envelopes, forms, list views, and more. Complete Access can be used with Rosebase, Sybase, Oracle, Informix, Interbase, or any other database for which an adaptor is available.

Ocean Software, Inc./8683 Autumn Green Dr. Suite #100/Jacksonville, FL 32256
904-363-1646/info@oceansoft.com

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ACCURATE TERMINAL EMULATION FOR NEXTSTEP

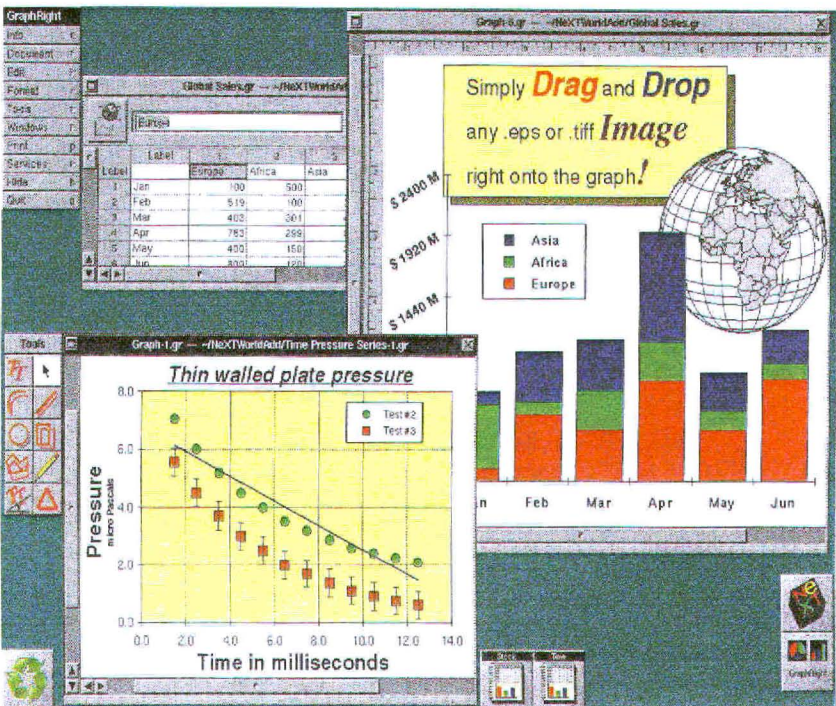


Cables is the definitive terminal emulation and communications application for NEXTSTEP. Features: DEC VT320, VT220, VT102, ANSI-PC, DG D211, Tektronix 4010/4014 emulations; function keys and keyboard mapping; connect directly to serial ports, shells, or remote hosts; built in file transfer protocols; full color support; drag and drop configurations and more. With accuracy, robustness, and ease of use, Cables is the clear choice for your interoperability and legacy application needs. Price: \$189-\$399. Available for Intel and NeXT hardware.

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GraphRight



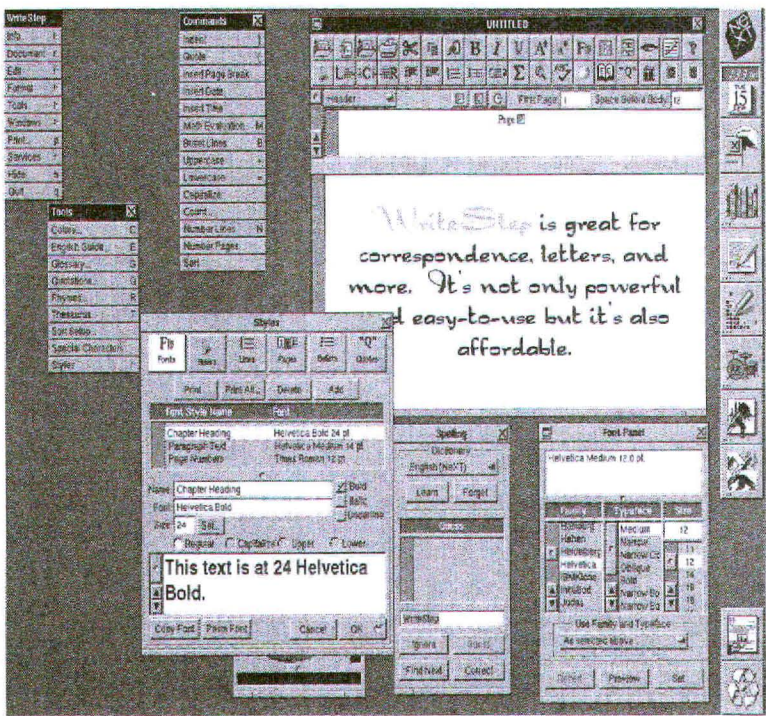
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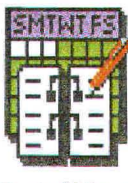
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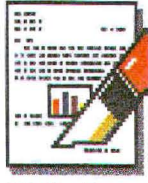
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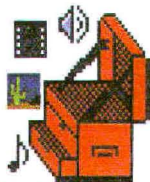
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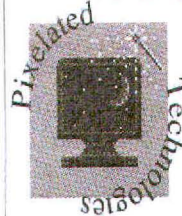
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* "The CW Guide to Servers: Buyers' Scorecard," Computerworld, March 22, 1993.

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SIMSON00002016

Lately, I've been reminded of the baling-wire mechanics I used to perform when I was still a rancher and got by on what I could cobble together from what was lying around. I've got a new computer. It's an Epson Progression, running NEXTSTEP for Intel, still a nonstandard configuration.

It is the first PC I've laid a finger on since I sold my Compaq "Portable" back in 1988. If I squint and look directly at the screen, I can pretend that it's really a NeXT. It just (well, for the most part) works.

It didn't work at all when it arrived. I put the juice to it and watched those incredibly ugly DOS characters form on my screen: "Defective or nonsystem disk. Replace and strike any key when ready." Some things never change.

I had no choice but to unbolt its tan steel box and take the matter into my own inexperienced hands. Fortunately, it didn't require a wirehead to see that the SCSI controller board had rattled loose. I plugged it into a slot and, a couple of minutes later, I was looking at the fashionable hues of the Workspace Manager we've all come to know and love.

Once booted, this combination of disparate items adds up to about 95 percent of what you used to get from NeXT. The Wingine graphics board keeps the screen every bit as fresh as a NeXTstation Turbo does, but disk operations give the monitor a mild palsy and the screen dimmer doesn't work. There's a sound board, but apparently no driver for it. The machinations required to mount and unmount floppy disks are the very definition of a kludge. But it's very fast and it absolutely, positively does not crash.

Of course, there now arises the question of what I will actually do with it. Unlike NEXTSTEPS of yore, NEXTSTEP for Intel doesn't arrive richly accessorized. (I'm writing this column in Edit, the word-processor equivalent

of a mattress on the floor.)

Well, one thing I can do with it is store and search my 150MB e-mail archive. I set about connecting the Epson to my Mac network. I mail-ordered an Intel EtherExpress adapter card, which arrived with a disk of drivers for everything from NetWare to Vines, but not NEXTSTEP. Fortunately, NEXTSTEP 3.1 came with a driver for that card, which I assumed would work.

I've used IPT's estimable NEXTSTEP-to-Mac networking software, uShare, to productive effect on my Cube, so I got a copy of the Intel version (which, with IPT's Partner, includes the ability to access AppleShare printers and networks). But, upon loading it, diplomatic relations between the Epson and my Macs weren't immediate.

I called Intel support. No one there knew anything about using its board under NEXTSTEP. I called IPT and spoke with Rod David. He revealed that the product supports only one PC Ethernet board, the SMC Elite 16. But he had lore indicating that Intel boards might work if you use Phase I Ethernet protocols.

With his patient help and a lot of my own cobbling, I now have a two-way network that more or less works, though my main Mac is now crashing at the slightest provocation. There is no one who can help me tweak out this bug, since I am now evidently the leading local authority on this particular mongrel combo.

My first impression of NEXTSTEP for Intel is that it works and probably can be made to work seamlessly, but I will have to be very resourceful until I have a few more neighbors out here on the beige frontier. ♦

JOHN PERRY BARLOW puts his neck in a noose here each month. He can be reached at barlow@nextworld.com.

Zoology Notebook

NEXT GAMES

by SCOTT KIM

Outlines are a dynamic way to organize information on a computer. NoteBook, by Millennium Software Labs, takes the outline idea further by breaking outlines into pages that are organized like a book. The first page of a notebook is a table of contents that lists all the sections and pages. Each item, or cell, on a page is marked with a circle, diamond, or other symbol. A page includes a section name, page name, page number, and one or more cells. For instance, Page 3 (shown at right) has the name Arnold, belongs in Apes, and has one cell.

CONTEST

A zookeeper has used NoteBook to keep track of apes, baboons, and chimps. Unfortunately, the pages have lost their numbers and section names. With the cryptic notes written on each page, can you help the zookeeper figure out which page is which? Write the name of each page in the table of contents at right.

Up to ten lucky winners will receive a NeXTWORLD T-shirt. Address entries to Puzzle Editor, NeXTWORLD, 501 Second St., San Francisco, CA 94107. Or fax us at 415/978-3196. And while you're at it, write us a note about the magazine. Entries must be received by January 15, 1994.

The answers to "It Takes All Sorts" in the November issue are: 23, 425, 523, 6524 or 6542, and 3426 or 3462.

Contents	
Apes	1
Arnold	3
Bernice	4
Charles	5
Baboons	7
Diane	8
Edwin	9
Chimps	11
George	12
Helen	13

Apes 3

Arnold

- This animal's favorite food is carrots.

Bernice

- This animal is the same type as Edwin.
- The previous page is not the contents page for a section.

Charles

- This page is in the same section as Helen.

Diane

- This is not the first page of a section.
- This animal is not a chimp.

Edwin

- The next page is in a different section.
- This animal is not an ape.

Fannie

- This page has an even page number.
- The next page is not the last page of the notebook.

George

- This animal has a big appetite.
- The name of the next page does not contain the letter N.

Helen

- The name of the next page contains the letter E.

Igor

- The next page has two cells.

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Cell Regeneration Trial Report Sample NS-93

Regrowth Cross Tabulation

Trial	A	B	C	D
1	5		4	1
2	5		5	
3	4	1	3	2
4	5		4	1

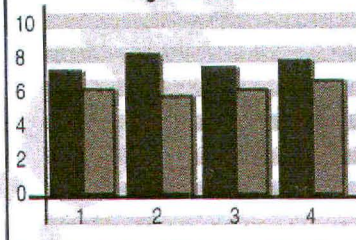
Regrowth Codes

A	Full Regrowth
B	Partial Regeneration
C	Cell Acceptance
D	Cell Rejection

Summary: NS-93 Accelerated

Depth(mm)					
Trial	Start	End	Δ	Days	$ \bar{\Delta} - \Delta $
1	7.16	6.16	1.00	27.4	0.24
2	8.23	5.94	2.29	35.4	1.05
3	7.52	6.28	1.24	32.2	0.00
4	6.96	6.50	0.46	19.3	0.78
			$\bar{\Delta}$ 1.24	Avg. Dev. 0.50	

Regrowth Distribution



Notes

This trial was extremely successful in showing the regenerative potential of Serum NS-93. We recommend going to full human study as soon as possible.

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Page 1 of 4

2:11am 7/11/1993

Static Images

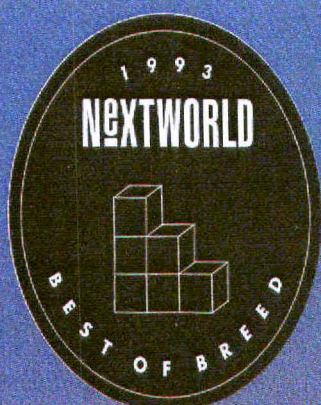
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